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MIDDLE EAST UNIVERSITY

The Impact of Training and Information and Communication Technology on Employees Performance: An Empirical Study on Pharmaceutical Manufacturing Companies in Amman

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أثر التدريب و تكنولوجيا المعلومات و الاتصالات

على أداء العاملين: دراسة ميدانية على شركات صناعة الأدوية في عمان

</div>

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THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER IN BUSINESS ADMINISTRATION

Department of Business Administration
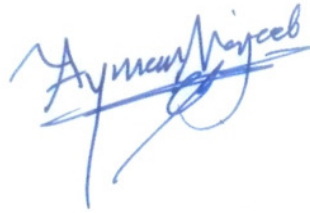
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May – 2013

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"The Impact of Training and Information and Communication Technology on

Employees Performance: An Empirical Study on Pharmaceutical

Manufacturing Companies in Amman"

It was approved on:

Date: 28   / 5   /   2013

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DEDICATION

To my father and mother for their support and encouragement

To my brothers and sister Yahya, Mohammad, and Dana

To all my friends

No words can make me express my gratitude and thanks

To each of the above, I extend my deepest appreciation

V

ACKNOWLEDGEMENT

Thanks to Allah, the Lord of all worlds and existence, the most

Gracious and the most Merciful

I would like to sincerely thank my supervisor Dr. Ali Falah Dalain for his

guidance and support throughout this study.

Additionally, I would like to thank the discussion committee members for

their agreement to review and discuss this study.

Finally, I would like to thank all of my instructors who provided me with

valuable knowledge throughout studying the Master Program.

Sincerely Yours,

Ayman Zakaria Najeeb

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ABSTRACT

This study aims to measure the impact of Training and Information and Communication Technology on Employees Performance. Two independent variables are defined namely: Training and information and communication technology as well as one dependent variable is defined namely: employees' performance.

The study population is consisted of (15) Pharmaceutical Manufacturing Companies working in Amman. The study used stratified random sample. To collect the primary data a questionnaire survey was distributed to (120) managers. The questionnaire consisted of (32) items of close ended response type.

The study used the software package for statistical analysis SPSS (Statistical Package for Social Sciences) for testing the hypotheses through regression analysis.

The results showed that training is the most significant where (Beta= 0.271, Sig= 0.008) and it positively and directly regresses on employees performance, followed by information and communication technology where (Beta= 0.254, Sig= 0.012) and it positively and directly regresses on employees performance.

The researcher recommend to keep an updated technology tools in pharmaceutical manufacturing companies which will help employees to perform their work accurately, efficiently and effectively, And also delivering employees' training programs related to new software applications is necessary to improve individual employees' performance due its functional role in the learning process in the organization.

"أثر التدريب و تكنولوجيا المعلومات والاتصالات على أداء العاملين:

دراسة ميدانية على شركات صناعة الادوية في عمان"

اعداد

ايمن زكريا نجيب

اشراف

الدكتور علي فلاح الضلاعين

الملخص

هدفت هذه الدراسة إلى قياس أثر التدريب و تكنولوجيا المعلومات والاتصالات على أداء العاملين. و قد تم تحديد متغيران مستقلان تمثلو في التدريب و تكنولوجيا المعلومات و الاتصال كما تم تحديد متغير تابع تمثل في اداء العاملين.

تكون مجتمع الدراسة من (15) شركة ادوية تعمل في مجال صناعة الادوية في عمان. واستخدمت الدراسة عينة عشوائية طبقية. ولجمع البيانات الأولية تم توزيع الاستبانات الى (120) مديرا. وتكونت الاستبانة من (32) فقرة محددة الاجابة.

استخدمت الدراسة الحزمة الإحصائية للعلوم الاجتماعية (SPSS) وتم اختبار الفرضيات باستخدام تحليل الانحدار.

وأظهرت النتائج أن التدريب هو الأكثر أهمية حيث (Beta= 0.271, Sig= 0.008) وبشكل إيجابي ومباشر يرتد على أداء الموظفين، تليها تكنولوجيا المعلومات والاتصالات حيث (Beta=0.254, Sig= 0.012) وذلك بصورة إيجابية ومباشرة يرتد على أداء الموظفين.

XIII

يوصي الباحث الحفاظ على تحديث الادوات التكنولوجية الحديثة في شركات تصنيع الأدوية

والتي سوف تساعد الموظفين على أداء عملهم بدقة وكفاءة وفعالية، وأيضا تقديم برامج تدريبية

للموظفين تتعلق بالتطبيقات البرمجية الحديثة لتحسين اداء الموظفين من خلال دورهم في عملية التعلم

في المنظمة.

Chapter One

Chapter One

1.9 **Determinants of Study**

1.10 Terminologies of the Study

Chapter One

General Framework

(1-1) General Framework

Information and communication technology (ICT) has not only changed the work styles of the organizations but also has considerably increased the efficiency and employees' performance Gupta (2000), The growth of any company, in addition to capital, intelligent human resources and good production techniques, is now highly dependable on the use of Information and communication technology specifically (Morgen, 1998).

Information and communication technology is a branch of computer science, data storing, manipulation and report, printing, recording, transmission, decision-making and presentation in desired form at desired place. These features enable employees' performance (Zuboff, 1998).

The anticipation was that increased investment in Information and communication technology would obviously lead to increase in employees' performance. Information and communication technology has made rationalization promising in organizations by minimizing human error. These features of Information and communication technology are called as automation (Zuboff, 1998). Specifically, information and communication technology has been widely used in knowledge work.

Training plays a role in the economic development and essential part of Human Resource Development (HRD), the review of the literature suggests that the human resource can be advanced through better training (Haq, 2002). Training is necessary tool for improving employees' performance, productivity and adaptability, therefore contributing to improving the overall competitiveness of the organizations' (Cailods, 1994). Therefore, this study aims to investigate the potential impact of training and information and communication technology on employees' performance.

(1-2) Problem of the Study

In light of the acceleration, progress, and technological development; training and information and communication technology have become an important factor on the development of organizations, and as is well known through the management literature and

previous related studies that the development of organizations is directly dependent upon the performance of the human element through work quantity, quality, as well as speed of work achievement which reflects on the overall performance in the organization and due to the lack of previous Arabic studies in the sector of pharmaceutical manufacturing companies in Amman, Also some organizations do not want to keep updating technology because they believe saving money is the right way, and of course keep updating technology need to train staff to the new technology, so spending money on the targeted points will lead in the long run to a successful organization, this study seeks to investigate the potential impact of training and information and communication technology on employees' performance.

(1-3) Questions of the Study

This study seeks to answer the following questions:

The first main question:

Is there an impact of training on employees' performance?

This first main question is divided into the following sub questions:

1. Is there an impact of training on quantity of work?

2. Is there an impact of training on quality of work?

3. Is there an impact of training on speed of work achievement?

The second main question:

Is there an impact of information and communication technology on employees' performance?

The second main question is divided into the following sub questions:

1. Is there an impact of information and communication technology on quantity of work?

2. Is there an impact of information and communication technology on quality of work?

3. Is there an impact of information and communication technology on speed of work achievement?

Third main question:

1. Is there an impact of training and information and communication technology on employees' performance?

(1-4) Objectives of the Study

This study seeks to achieve the following objectives:

The first main objective

Identify the impact of training on employees' performance.

This first main objective is divided into the following sub objectives:

1. Identify the impact of training on quantity of work.

2. Identify the impact of training on quality of work.

3. Identify the impact of training on speed of work achievement.

The second main objective:

Identify the impact of information and communication technology on employees' performance.

This second main objective is divided into the following sub objectives:

1. Identify the impact of information and communication technology on quantity of work.

2. Identify the impact of information and communication technology on quality of work.

3. Identify the impact of information and communication technology on speed of work achievement.

The third main objective:

1. Identify the impact of training and information and communication technology on employees' performance.

(1-5) Importance of the Study

The study acquires its importance in the following:

1. Information and communication technology as well as employees' performance is a recent topic that requires more investigations and research, especially in developing countries. In spite of the fact that previous studies are available at the international level there is paucity in local studies.

2. The current study provides a model for the use of information and communication technology into the Jordanian pharmaceutical industry capable of improving the employees' performance.

3. The current study shed lights on the importance of pharmaceutical manufacturing companies which is one of the integral source of the Jordanian economy, and also because of its prominent role in achieving economic development and provide high quality products that contribute to maintaining health.

4. The current study provide orientation to managers to benefit from information and communication technology as a result, managers are provided help in developing the right information and communication technology system that meet their requirements.

5. The current study increases the understanding of information and communication technology components which has useful application in organizations by using training programs to handle the responsibilities efficiently in the organizations and to learn new things, which will prepare them to take up higher responsibilities in the future.

(1-6) Research Model

In light at the previous literature pointed out by (Abou-Moghli, et. al 2012; Gupta, 2000; McClelland, 2002; Mathis & Jackson 2009) the following model in figure (1) is presented:

Independent Variable   **Dependent Variable**
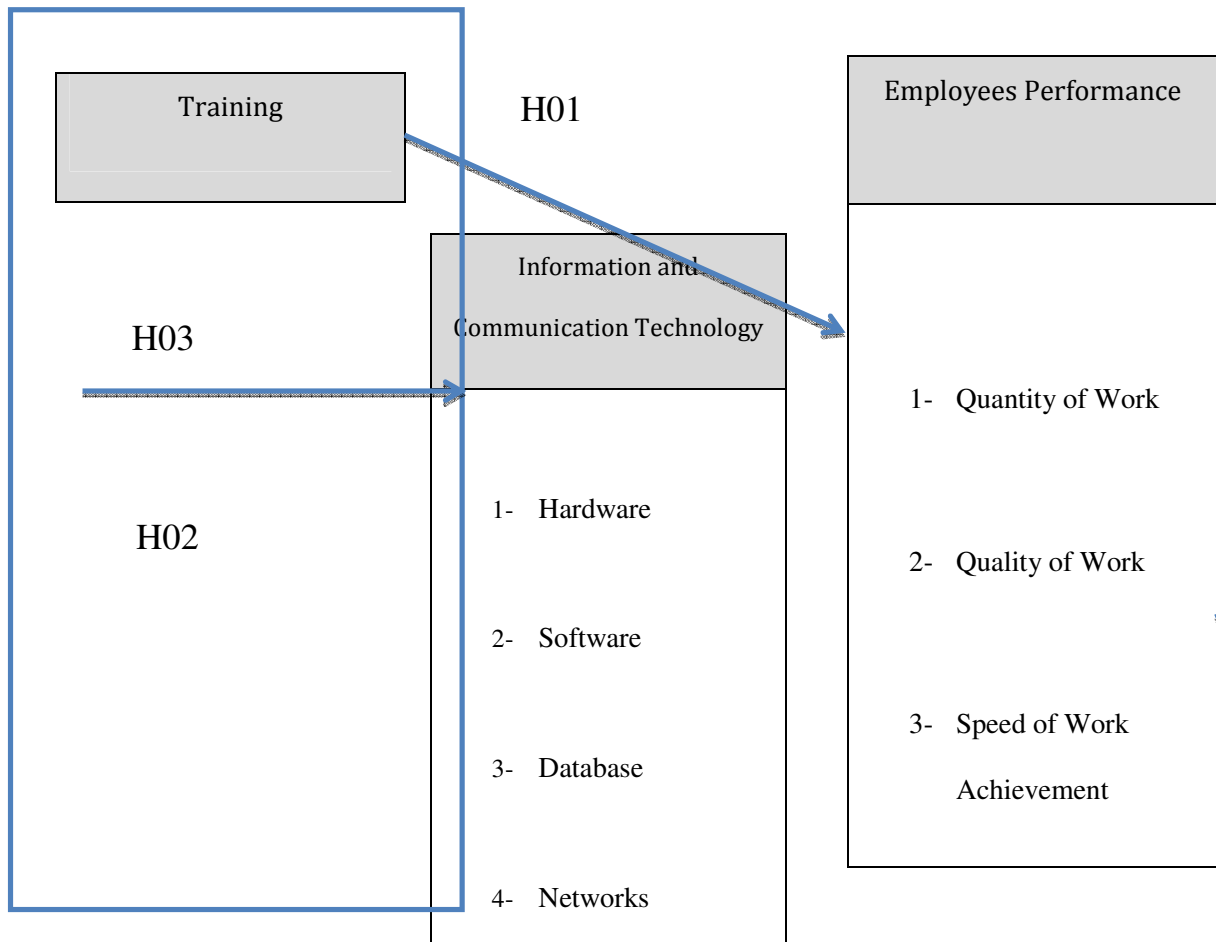
Figure (1)

(1-7) Hypotheses of the Study

In order to reach the study objectives the following hypotheses have been developed as follows:

The first main hypotheses

There is no statistical significant impact of training at the level ($\alpha \leq 0.05$) on employees' performance.

This first main hypothesis is divided into the following sub hypotheses:

1. There is no statistical significant impact of training at the level ($\alpha \leq 0.05$) on quantity of work.

2. There is no statistical significant impact of training at the level ($\alpha \leq 0.05$) on quality of work.

3. There is no statistical significant impact of training at the level ($\alpha \leq 0.05$) on speed of work achievement.

The second main hypothesis:

There is no statistical significant impact of information and communication technology at the level ($\alpha \leq 0.05$) on employees' performance.

This second main hypothesis is divided into the following sub hypotheses:

1. There is no statistical significant impact of information and communication technology at the level ($\alpha \leq 0.05$) on quantity of work.

2. There is no statistical significant impact of information and communication technology at the level ($\alpha \leq 0.05$) on quality of work.

3. There is no statistical significant impact of information and communication technology at the level ($\alpha \leq 0.05$) on speed of work achievement.

The Third main Hypothesis

1. There is no statistical significant impact of training and information and communication technology at the level (α ≤ 0.05) on employees' performance.

(1-8) Limitations of the study

1. Place limitation: Pharmaceutical Companies in Jordan.

2. Time limitations: Study will be conducted in 2013.

(1-9) Determinants of the Study

1. Determinants to data access due to the fact that data gathering through questionnaire is restricted to the period of these questionnaires which may restrict the quality and quantity of data collected.

2. The research finding will be based on questionnaires collected from fifteen pharmaceutical manufacturing companies, thus limiting the generalizability of the study result.

3. The result of the study will be restricted to Jordanian setting, generalizing to other countries will be questionable.

(1-10) Terminologies of the Study

1. Information and communication technology (ICT): the computer based technology that has the capability of collecting, processing and outputting information. Information and communication technology will be measured through the components of hardware, software, database and networks (Abou-Moghli et. al, 2012; Gupta, 2000).

a. Hardware: means the collection of physical elements that comprise a computer system such as memory and monitor (Gupta, 2000).

b. Software: is a collection of computer programs and related data that provides the instructions for telling a computer what to do and how to do it (Gupta, 2000)

c. Database: is a structured collection of data organized to model relevant aspects of reality (Gupta, 2000).

d. Networks: is a collection of computer and other hardware interconnected by communication channels (Gupta, 2000).

2. Employee performance: refers to the ability both (physical and psychological) to execute a specific task in specific manner. Employee performance will be measured through the dimensions of: quantity of work, quality of work, speed of work achievement (Mathis & Jackson 2009).

a. Quantity of work is measured by the indicator of size of work (Uddin, Luva & Hossian 2012).

b. Quality of work is measured by the indictor of meeting or exceeding the standard that is set by the organization (Uddin, Luva & Hossian 2012).

c. Speed of work achievement is measured by the indicator of the time length of work accomplished (Uddin, Luva & Hossian 2012).

3. Training: is a process which is planned to facilitate learning so that people can become more effective in carrying out duties of their work (Bramley, 2003).

The researcher defines Information and communication technology as it refers to technologies (hardware, software, database and networks) that provide access to information through telecommunication tools which helps to achieve the organization goals.

Chapter Two

Chapter Two

Literature Review and Related Studies

2.1 General Framework

2.2 Information and Communication Technology

2.3 Employees' Performance

2.4 Training

2.5 Previous Studies

2.6 Distinctive Features of the Current Study

Chapter Two

Literature Review and Related Studies

(2-1) General Framework

The objective of the existing study is to examine the potential impact of information and communication technology on improving employees' performance mediated by training in pharmaceutical manufacturing companies in Jordan. The review of the literature for this study included academic publications, textbooks, and electronic websites. To access the literature, key terms such as information and communication technology, employees' performance, pharmaceutical manufacturing companies, among others were used to search databases. After a careful review of the topics, publication abstracts, and summary of the material retrieved, areas of interest that supported the research topics were selected. The chapter presents supporting literature for the study, and provides a focus on the study variables.

Information and communication technology (ICT) is a dominant force in today's global society. The arrival of computers and ICT has been perhaps the single massive drive impacting organizations during past few decades. ICT is a diversified version of computer sciences and it is not only a conventional keypunching, data storing, manipulation and report printing but it is information collection, transmission, logging, recording, intelligent decision-making and presentation in desired form at desired place. According to Greaves (2005) explains that the ICT is developing all the living ways. It is changing all features of

life and life styles. The digital revolution has given mankind the skill to treat information with mathematical precision, to transmit it at very high accuracy and to manipulate it as well, Marshall (2002) views that the amount of calculation power which is available to mankind is increasing at an exponential level. Computers and communications are becoming an integral parts of every days lives. Arguably, no area is as promising in its potential as ICT. No doubt, it has given a new meaning to the word "Convenience". Furthermore, ICT is known as the productive source to increase the economic growth, productivity and customer satisfaction and employee performance. (Limayem, 2006).

(2-2) Historical View of Information and Communication Technology

The literature explains that information and communication technology (ICT) related to the developing countries and expanded to include both optimistic and pessimistic views as well as different opinions of changes and forces driving them. The literature shows that ICT generates many benefits and is a key to develop the concern employees in organizations (Venkatesh & Davis, 2000). There is a significant resistance to accepting and using computer resources in developing countries (Davis, 1993). In a lots of countries, organizations experience struggle and even more failure in moving ICT into practice even with spending billions of dollars (Hill et. al, 2002). The problems appear to be worst in developing countries (Mehta & Shah 1998).

The aim of every organization by using information and communication technology is to improve employee performance, and this performance efficiency is only achieved when ICT is installed correctly. The slow ICT diffusion in developing countries could be

from the poor infrastructure, sociopolitical, language barriers, cultural, economic risks and conflicts. Many developing countries put a hope by using ICT. And the challenges of ICT in these countries are by no means identical to the ones in the developed countries. And the challenges faced by developing countries in exploitation the full potential of ICT don't appear many differences from those of that are faced by the developed countries.

Today ICT is the best choice in all the countries to upgrade their economies and come to be competitive in the global market place (Chan, 2000). The ICT based economies has simplified the most complex economies of the world and improved the productivity to the level where an economy like US has made its way out of the entire national deficit and turned into a surplus in recent years (Gader, 1999). The world economy now has moved from low-value basic industries to a fast paced high-value information based economy (Odedra & Kluzer, 1998).

(2-2-1) Defining Information and Communication Technology

Information and communication technology (ICT) has been defined by different authors over the years; ICT has been conceptualized and measured differently by different researchers. The majority of the authors, however, compare Information and communication technology with computer systems. According to Cash et al. (1983) wider ICT scope and defines Information Technology as "The integration of, data processing, telecommunications and office automation".

Moreover, according to (The International Foundation for Information Technology, 2010) Information and communication technology, it's the technology used for data, information, and knowledge processing and managing.

However, for the purpose of this study, the researcher defines ICT as the computer based technology that has the capability of collecting, processing and outputting information. Information and communication technology will be measured through the components of hardware, software, database and networks (Abou-Moghli, 2012 & Gupta, 2000).

(2-2-2) Importance of Information and Communication Technology (ICT)

According to (Pourmirza, 2006) Information and communication technology (ICT) are driving national development efforts worldwide. A number of countries in both developing and the developed world are exploring ways of simplifying their development process through deployment and the utilization of ICT within their economies. Therefore, the bright view of ICT in organizations makes organizations to be better by managing their resources in future investments.

In addition, According to (Qobadi, 2006) Economic variables help to improve through the information and communication technology (ICT), they very impact developing countries. In addition, special capacity to enhance the knowledge in ICT areas have been created by developing digital networks, computers, Mobile communication, TV and etc.

According to (Maatman, 2006), There are additional strategic and functional skills required as well as further ICT skills. Human Resource professionals are eventually responsible for Human Resource Management (HRM) technology which specifies that have to be able to give input into the development of the tools, and also have an understanding of basic ICT concepts. Also according to Bell et al. (2006) elaborates on the requirements of ICT skills, explained that it would contains of proficiency with Human Resource Information System (HRIS) usage and the ability to use web-based channels to deliver services. Other factors include the ability to teach others how to use human resource technology by understanding the technological features and identifying technology needs, also managing technology vendors, and abilities for using technology to collect data and transform it into strategic valuable information.

(2-2-3) Benefits of Information and Communication Technology

The benefits of ICT in organizations contain savings on inputs, greater flexibility, general cost reductions and enhancements in product quantity, quality and speed of work achievement. The new technology might save on labor or on certain specific labor skill that's help to reduce capital needs, for example: the increase use of tools and decrease in inventories or space requirements. This new technology may also lead to better product quantity, quality or better product development environments by speed of work achievement. Moreover, the new technology may also increase the flexibility of the production process that is allowing the use of economies scale (Milgrom and Roberts, 1990, 1995). A specific feature of ICT is related to networking and communication

technology. The new technologies leads to reduce the cost of communication part, organizations use these technologies to simplicity communication among employees and reduce cost. Monitor and control technologies can reduce the number of administrators required in the production process. Therefore, the use of ICT has direct influence to organizations in general.

(2-3) Employees' Performance

Performance can be separates to organizational performance and employees' performance. Employees' performance is known also as job performance. However: it seems that employees' performance is commonly objectively measured in organizations and it will appear that there are few alternative options (Otley, 1999).

Performance in organizations is reliant on the performance of employees' and other sides such as the environment of the organization, The difference between organizational and employees' performance is apparent, Therefor organizations that are doing well is one that is successfully attain objectives (Otley 1999), in other words, Effective implementing and developing appropriate strategy and employees' performance is the single result of an employees' work (Hunter, 1986). Meanwhile the purpose of this study is to explore the potential impact of information and communication technology on employees' performance, organizational performance located outside the scope of this study and only employees' performance is targeted.

According to Ramlall, (2008) the good employee performance is required for organizations, since an organization's success reliant on the employee's creativity,

commitment and training. Moreover, Good employees performance is important in stabilizing the organizational economy by improving living standards and higher salaries, An increase in goods accessible for consumption, Therefore: individual employee performance is important to society in general (Griffin et al, 1981).

According to (Pincus, 1986) the general performance is linked to efficiency or perception oriented terms, According to Hunter and Hunter (1984) vital role in a high employees' performance is the skill of the employee himself then the employee must be capable to deliver good outcomes. Hunter and Hunter (1984) also discuss that this is something the organization can know in front and they can select employees with the required skills or they can recruit those employees themselves. Absolutely the last is more time consuming, but can achieve superior results in the end (Hunter, 1986).

According to (Kostiuk and Follmann, 1989) in most organizations, performance is measured by supervisory rating; however these data are not very valuable since they are highly subjective.

According to (Bishop, 1989) the consistency of worker performance is greatest when conditions of work are stable, but in the work practice conditions never are stable. This makes it even harder to measure performances objectively. According to (Perry and Porter, 1982) the employees' performance will be measured despite the lack of availability of generally accepted criteria.

Breaugh (1981) states in his study that there are four different performance dimensions on which employees are measured, named: quantity, quality, dependability and knowledge. This theory shared with Griffin et al. (1981). And the theory results in the work

of, Hunter (1986) stated in their literature review that there are few correct objectives to measure employees' performance, one alternative is used in the study, Namely: employee performance as the average number of units produced per hour for one day are called productivity.

According to Griffin et al. (1981) specified that there are some other options to measure employees' performance accurately, but they have more to do with productivity, for example: employees' performance knowing as the number of units produced divided by total time per minute. And the five job features are (skill variety, task identity, task significance, autonomy and feedback) can bring the employee to three critical psychological states, namely: experienced of the work, experienced responsibility for the results of work and knowledge of the actual results of the work activities And according to Hackman and Oldham, the three critical psychological states will lead to high motivation, satisfaction and performance.

According to Favara (2009) employee performance the degree to which an individual has completed the requirements of his or her job description. Furthermore employee performance is the successful completion of tasks by a selected individual or individuals, as set and measured by a supervisor or organization, to pre-defined acceptable standards while efficiently and effectively utilizing available resources within a changing environment. Performance is associated with quantity of output, quality of output, timeliness of output, attendance on the job, efficiency of the work, and effectiveness of work completed (Mathis & Jackson 2009).

However, for the purpose of this study, the researcher defines the ability both (physical and psychological) to execute a specific task in specific manner by focusing on three variables as: quantity of work, quality of work and speed of work achievement.

(2-3-1) Importance of Employee Performance

Employee Performance is an essential variable in organizational studies to describe why some organizations are superior to others. Understanding the importance and the aspects of performance in an organization may influence the use of organizational resources for better performance (Lavanson, 2007). In the organizations, leaders are in the key position to manage resources to increase employee performance. The terms of manager had been used interchangeable in the literature (Krantz, 1994) pointed out that both terms are merged.

According to Bass (1997) and (Mullins, 1999), leaders are very important part of organizations workforce and they have strong influence on employees' and organizational performance. Leaders are responsible for understanding the importance of the employee contributions in achieving organizational goals and optimizing human resources.

According to (Maritz, 1995) and (Jones & George, 2000), effective organizations require effective management which has power on influencing their subordinates to contribution employee and organizational performance.

(2-3-2) Factors Contributing to Employee Performance

Employee performance is not only the basic unit of organizational behavior studies (Bowman, 1996) but also an important subject of personnel research that deals with the subjects of compensation, promotion, training and feedback (Karakurum, 2005). Employee performance as a behavioral spin off evaluative and multidimensional concept (Motowildo, Borman, & Schmit, 1997) is necessary for organizations to reach its strategic goals and activities (Campbell, 1983). Employee performance is often discussed under two main fields: task performance and content performance (Borman & Motowidlo, 1993; Motowidlo & Van Scotter, 1994). Task performance which implicates many behaviors such as producing products, acquiring inventory, selling merchandise, managing subordinates, or delivering services promote core transformation and maintenance activities in an organization (Motowidlo & Schmit, 1999). Task performance is characterized by two main types. The first type contains of activities that transform materials into the goods and services as an organizational product. The second type consists of service production activities such as technical support, distribution, providing managerial contributions of coordination and supervision to increase efficiency (Motowildo et al., 1997).

(2-3-3) The Relationship between Training and Employee Performance

This study has shown that there are many elements in the organization and work environment that affect transfer of learning to employees' performance, one of which is the quality of the training program, and what is the most fit training program that given to employees to measure the performance.

There is nothing more important than measuring the level of employees' behavior as a result of the training. If the learners do not apply what they learned, the program will be failure even if learning has taken place. Therefore, measuring behavior change is required, not only to see if behavior has changed, but also to find the reasons why change has not happened. (Kirkpatrick, 2005).

According to Cross (2001) stated that in order to prove the training program produced is to link learning to business results. And he suggests establishing a causal link between a skill deficiency and business outcome.

According to Kirkpatrick and Hawk (2006) agree that a challenge for all the organization is how to demonstrate the importance of learning to business managers by Identifying business needs and developing targeted learning opportunities, and this is the core of ultimate strategic execution. The objective for a particular course or program reflects what knowledge and skills a participant should gain in the course. Although it is easy to see there is an involvement and it is difficult to collect the evidence to prove it.

According to Devaraj & Babu, (2004) conducted a study to measure the relationship between training and employees' performance. They identified the drivers of employee's performance within Infosys, a main software industry service provider based in Bangalore, India. First, they viewed the appraisals that reported by supervisors on the employees' performance for who conducted to a specific training. Then they calculated a marks point average to assess participants' performance on certain general courses such as programming fundamentals, database management, and systems analysis and design. They

were able to draw conclusions based on these data as to the employees' eventual performance.

According to Kirkpatrick (2005) list the top ten mistakes managers make when trying to transfer learning to behavior. Most mistakes are:

(1) There is no involvement from executives and managers.

(2) Not following up and following through.

(3) Not developing action plans from a business management approach.

(4) Frustrating Employees' from learning.

(5) They not providing a clear direction vision, mission, strategy, and expectations.

(6) Not providing a balance of accountability and support.

(7) Not providing appropriate technology and system support.

(8) Having the wrong kind of leaders or the right kind in the wrong positions.

(9) Not focusing on the critical mission.

(10) Not linking and aligning incentives to desired behavior and subsequent results.

Training would lead to business impact only if employees apply new skills and knowledge in everyday job performance (Mooney & Brinkerhoff, 2008). There is a huge difference between acquiring knowledge during training and having this knowledge applied on the job. The effectiveness of training depends ultimately on whether the learned outcomes are used in the workplace (Salas & Cannon-Bowers, 2001).

Employee training and development is a process or set of activities aimed at assisting that individuals acquire knowledge, skills, and attitudes that are vital for effective performance of a specific task or job. Within the context of work in modern day management, employee training and development is a non-stop continuous process that starts at the point of employment and progresses throughout employee's career (Alo, 1999).

(2-4) Training

Training is a process of building up confidence of employees at workplace in terms of better performance. Training plays an important role in human resource development to achieve objectives in the organization (McClelland, 2002).

According to (Harrison, 2005) stated, Learning is based on the training process. Any learning activity that is formally designed in order to achieve specified learning objectives.

According to Bramley (2003) Training is a process which is planned to facilitate learning so that people can become more effective in carrying out aspects of their work.

Organizations could develop and enrich the quality of the current employees by providing complete training package (Bartel, 1994). Study indicates that investing in training employees about problem-solving, decision making, teamwork, and interpersonal relations result in beneficial organizations level outcomes (Barak, Maymon, and Harel, 1999).

Most of the managers around the world are creating and enriching their roles in providing extensive training with the purpose of achieving defined goals of the organization (Jia-Fang, 2010). Now, more effective and emphasized on training skills are required by every business entity with the focus on non-stop learning in technology. It can play a role in building a consistent and progressive learning environment. Besides, it can make the forthcoming challenges like a hot cake for more trained people (Wei-Tai, 2006).

Training is a content-based activity that aims at changing individual behavior or attitude (Mullins, 2010); on the other hand, others also do see it as an important employee motivator (Barret& O'Connell, 2001). Training from a company's perspective adds to human capital and also a means of securing workplace commitment and loyalty. Hence, the theoretical proposition is that training is likely to lead to boost employees' performance to the organization by learning and acquiring the new technologies.

(2-4-1) Definition of Training

In the field of human resource management, training is concerned with organizational activity aimed at bettering the performance of individuals and groups in organizational settings. It has been known by several names. For instance, employee development, human resource development, and learning and development. (Harrison 2005).

Training on its behalf tries to defeat the gaps between employees and major contents of their working environment. Moreover, it may be in the form of learning from seniors, receiving satisfaction, cooperation from peers, and respects and obeying from the

subordinates. One of its positives is that it enables employees to actively participate in providing supportive suggestion on their behaves, and conveying it to concerning management for the betterment of the employees and organization.

Companies and entities around the world who are working with the notion of continuous development to their employees work and performance should arrange such programs like those, which can polish the employees' abilities and can develop their competencies which are required at the workplace, (Jie and Roger, 2005).

For the purpose of this study Training is a process which is planned to facilitate learning and let people become more operational in carrying out features of their work. Moreover: training can achieve lower cost of production, lower turnover and change management.

(2-4-2) Importance of Training

Training could be perceived as a tool to help organizations gain a competitive advantage and edge. According to Krietner (1995) in his book The Good Manager's Guide, no matter how much time and effort a person would spend to carefully screen the job applicants, a gap is going to remain between what the employee does know and what they should know. Accordingly, there is a vital need for organizations to train their human resource to be able to learn in order to acquire more skills and knowledge to beat competition.

In addition, training is a key element to improve organizational performance through the increasing level of individual competences. In other words, training will help

employees to master knowledge, skills, behaviors, sense of self-worth and confidence upon which they will be able to perform efficiently to improve on their performance as well as the organization.

Moreover, training can also eliminate or reduce risks in organizations due to the fact that the trained personnel will be efficient, thus will be able to make better use of the organizations property thereby reducing and avoiding waste. Also, training will make the employees feel a sense of security which will result in prevention of labor turnover. According to Cole (2002) training can achieve lower cost of production, lower turnover and change management.

(2-4-3) Methods of Developing Training Programs

The best way to develop training programs is to go through the training process. That is: 1) Training needs identification TNA. 2) Training plans. 3) Training implementation. 4) Evaluation or training feedback. (Dessler, 2012). The need for training has to be clearly identified in accordance with a well-organized procedure looking at the training needs from the organizational and employee perspective.

(2-4-4) Training Needs Assessment (TNA)

Based on the analysis, the organization can assess the level of growth over a defined period of time and then determine the shortage and problems in order to help specify the required training programs. Besides, in identifying the training needs from the employees' perspective, the organization can measure the performances of individual employees. This

can be measured by analyzing the efficiency of the individual employees against the required standards previously set by the organization. This could happen through frequent performance appraisals. Also by identifying the gap that exists between the required and the actual competencies expected of organizations and employees so as to determine the kinds of training that can help bridge the gap (Asare-Bediako, 2002).

A training need is a gap between "what is" and "what ought to be" regarding training and development activities. TNA is used to identify gaps and to provide information for a decision on whether the gaps could be addressed through training. The assessment is part of a planning process that focuses on identifying and solving performance problems. These performance problems may be related to knowledge, skills and attitudes. Training needs assessment (TNA) is usually related to organizational and individual performance. Needs assessment means that the assessed individual has a defined job performance or that an organization has defined objectives and goals.

A Training Needs Assessment (TNA) is used to assess an organization's training needs. The root of the TNA is the gap analysis, which is an assessment of the gap between the knowledge, skills and attitudes that the people in the organization currently possess and the knowledge, skills and attitudes that they require to meet the organization's objectives (Bartram, Sharon, Gibson & Brenda 1997).

According to (Boydell, 1990), to identify your training needs you need to ask yourself:

• Where you want your business to go?

• What knowledge and skills are needed to get there?

• Which skills you already have within the business and which skills you currently lack?

• Identify what you want to achieve by implementing a training program.

• Ensure your objectives are SMART - Specific, Measurable, Achievable, Realistic and Time-bound.

• Involve staff - ask what training they feel they require, and explain the benefits of training.

• Carry out a full audit of the skills you already have in your business. Some staff could have interests and qualifications that you didn't know about, and yet they are not currently utilizing.

It is important to note that employees can require training for a variety of reasons, which usually fall into two categories:

1. Training to fill a "performance gap" as identified during the performance management process.

2. Training to fill a "growth gap", that is, to be promoted or be able to fill another open position in the organization.

(2-4-5) Training Objectives and Plans

There is also the need for the organization and the employees to know the motive for which they undergo training. Hence, we can conclude that training programs will not be more effective unless the purpose for which they are given is known. Therefore in planning training, it should go through these stages; develop a training plan, designing a training lesson, selecting the trainer and prepare the trainer. (Zaccarelli, 1997).

The training plan will serve as the guidelines for both the trainer and the trainee to comply with in order to successfully implement the program. It covers the individuals involved in the training, the person that will administer the program, the required resources and the content to be followed. Once the plan for the program has been outlined then the training lesson is designed.

The training lesson is developed to help the participants focus on the segments developed and also set out the time frame for each segment of the lesson. Then, a competent trainer is hired to undertake the training. The trainer should be able to communicate and transfer knowledge effectively. Finally, it is worth mentioning that the trainer will be able to communicate and transfer the skills and knowledge effectively so that the needed impart is realized. Thus the trainer should be well prepared to take on the task in order to achieve the desired results.

(2-4-6) Training Implementation

Implementation of training programs offers several potential advantages to individual employee performance in organizations. For instance, training helps organizations create pools of qualified replacements for employees who may leave or be promoted to positions of greater responsibility. This is very much adds to the internal recruitment factor. It also helps ensure that organizations will have the human resources needed to support the organizations growth and expansion. In addition to the above, training can enable the organization to make use of advanced technology and to adjust to a rapidly changing competitive environment. Finally, training can improve employees'

efficiency and motivation, leading to gains in both productivity and job satisfaction. (Ambler, 2006).

(2-4-7) Training Programs Evaluation

In measuring the overall effectiveness of the training program there is the need to also consider the costs and benefits of the training program. This is very much about the Return on Investment factor (ROI). This will help the organization know whether there has been effectiveness in terms of profits. Evaluation should take place before, during and after the training programs. According to Kenney et al (1992) review of the training program should be done during and after its completion and should be done by a training officer, the line manager, and the trainees themselves. Training can be evaluated in a wide variety of ways and means. Some of these are through questionnaires that serve as the feedback from the participants and case studies where the participants will have to apply the learned skills to practical situations and many others.

According to Tidler (1999) there are four aspects that measure training effectiveness:

1. Reaction: What trainees say about the value of the training? This could be assessed as the training goes on.

2. Learning: Objectives met, knowledge and skills learned.

3. Behavior: The skills acquired are implemented on the job.

4. Results: Impacts on performance.

According to (Tidler, 1999) described aspect number 1 (Reaction) as trying to discover the student's overall opinion about the training. The question maybe posed as: Did the training meet your needs? She reinforces aspect number 2 (Learning) stating evaluations require metrics recording whether or not the objectives were met. With aspects 3 (Behavior) and 4 (Results), Tidler (1999) stated that a greater commitment of resources is needed from leadership in order to conduct extensive research and evaluation. ―The first phase requires knowledge of individual performance before training (baseline measurement); the second phase requires evaluation of job performance after the training, which means a post-training factor. Although time consuming they are certainly worth completing. Aspect 4 (Results) involves determining whether the training objective was met. Further statistical evaluation would determine, states Tidler (1999), if any change is significant and whether correlations exist.

(2-4-8) Types of Training Programs

According to (Dessler, 2012) Defines types of the training programs:

1. **On The Job Training:** This helps employees develop the skills, knowledge, the right attitude and experiences needed on the job and involves teaching the employees how to work on the job hired for.

2. **Orientation Training:** is given to newly hired employees to introduce them into the organization and also train them on the job they will hold. The employees are taught about the culture, values, mission and processes and activities followed in the organization.

3. **Career Development Training:** This is also given to employees at all levels in the organization to have them prepared for future changes, new venture creations and responsibilities.

(2-4-9) Training Challenges

Organizations are continually facing the challenge of how to train employees in an ever-changing technology world. Davaraj & Babu (2004) acknowledge that organizations increasingly recognize that formal training is critical not only to the success and prosperity of their software professionals, but also to their competitive position in the marketplace.

Therefore, increasing pressure is put upon training departments to deliver high-quality training and education. While the training of technical employees is not a new challenge, measuring training for effectiveness and efficiency remains a frightening task. As organizations continue to look for ways to improve the individual performance, training departments will need to be able to show what is being done to support corporate objectives and to benefit the organization in compliance with the organization's overall strategy.

The definitive goal of effective training is to drive results. Organization and individual performance can be improved through alignment of training and organization strategy (Beamish, Armistead, Watkinson, et al., 2002). Hence, managers need to

demonstrate a positive impact on organization strategy and objectives. If the organization goal of a program cannot be identified, there should be a question on why it is there in the first place. According to Gale (2002), the ultimate value of training comes when it is linked to achieving overall organizations goals.

(2-5) Previous Studies

Study (Arvanitis & Loukis, 2008) entitled: "Information and communication technologies (ICT), human capital, workplace organization and labor productivity: A comparative study based on firm-level data for Greece and Switzerland".

The purpose of this study is to conduct a comparative empirical study of the effect of information and communication technology (ICT) capital, human capital and new organizational practices on labor productivity in Greek and Swiss firms. They use firm-level data collected in 2005 through a common questionnaire administered to samples of similar composition (e.g. similar firm sizes, similar sectors), from which they construct econometric models with similar specifications for Greece and Switzerland. The analytical framework is based on a firm level production function. The researchers found statistically significant positive effects for physical capital, ICT capital, human capital and ''employee voice"-oriented organizational practices for both samples. They also identify considerable

differences: Swiss firms are more mature and more efficient than Greek firms at creating, using and combining these 'new' production factors.

Study (Kalogiannakis, 2008) entitled: "Training with ICT from the Trainees Perspective. A local ICT Teacher Training Experience".

The purpose of this study conducted within the framework of national training programmed in Greece on ICT known as "In service teacher training in the use of ICT in Education" are presented. Based on specially constructed questionnaire intended for the educators, this research elicits teachers' attitudes towards this program. Some of the main results point out the preparedness of these teachers to use ICT in the daily school practice. Furthermore, they expressed their wish for further in-training programs concentrating the pedagogical development of the ICT use in class practice.

Study (Kennedy, 2009) entitled: "The Impact of Training and Development on Job Performance".

The purpose of this study seeks to evaluate the impact of the huge investment made in training on job performance of judicial staff. The researcher used both primary and secondary sources of for the conduct the research. The research findings revealed that the training conducted by the Judicial Service of Ghana for its employees was very negligible.

The research further recommends that the frequency of training provided by the Judicial Service of Ghana should be improved to ensure that more employees have access to training and development. Again, training and development offered by the Judicial

Service of Ghana should ensure a better understanding of the mission and vision statement of the Judicial Service of Ghana so that, employees can identify themselves with the organizational values in the discharge of the duties.

Study (Shaukat, 2009) entitled: "Impact of Information Technology on Management Efficiency (A Case Study of Pakistani Firms)".

This study examined the organizational performance of banking and manufacturing sectors of Pakistan over decade from different angels in addition to indicating the real problems these sectors are encountering in IT usages. Various aspects associated with the topic have been explored and discussed in the literature review and the primary data for detail study was collected from in-depth interviews and field surveys of 48 companies, 24 in manufacturing sector (12 local and 12 foreign) and 24 in banking sector(12 local and 12 foreign).

The data was tested by applying different financial and statistical techniques and the results of the research have led to the conclusions that IT investments have positive impact on the organizational performance and the banking sector performance outstrips the performance of manufacturing sector. Although all the good performing companies are using IT and most of them working with in-house developed IT systems, but the performance of the companies which are using standard applications in both the sectors is found to be excellent. However, it is highly dependent on the use of type of information systems. The socio-cultural/organizational/systemic factors like cultural, social, political, economic and human factors have impeded a lot to the implementation of IT in Pakistan. In

addition, various other problems like Pakistan inadequate telecommunication infrastructure, lack of talented employees, improper planning, unjustified investment and wrong selection of hardware and software are found to be the major constraints in implementation of IT in Pakistani organizations. The employee education, training, motivation, and reward were revealed as some of the measure the sample companies have taken to overcome employee resistance in IT adoption. Moreover, top management commitment and support were found to be the major reasons for IT success in the organizations.

Study (Javied, 2009) entitled: "Impact of Training on Earnings: Evidence from Pakistani Industries".

The purpose of this study is to examine the role of training in determination of wages. By utilizing the cross-sectional data from Labor Force Survey 2005-06, results have shown that training is not significant in the determination of wages, which shows the poor quality of training in the overall economy. Results were obtained by Ordinary Least Square (OLS) technique. However, schooling and other demographic variables have expected signs and magnitudes. The recommendations of the study based on empirical findings are toward technical education and vocational training institutions; they should ideally have to devise their technical education and vocational training exactly according to the requirements of industry. Empirical results also emphasize to improve the quality of training.

Study (Appiah, 2010) entitled: "the Impact of Training on Employee Performance: A Case Study of HFC Bank in Ghana".

The Purpose of this study is to find the impact of training on employee performance, that's leads to an improvement in the company's performance in HFC Bank of Ghana. Data was derived through questionnaires distributed to selected employees as well as the finance and human resource managers. The results revealed that HFC Bank had a comprehensive planned and systematic in house training program that every employee was aware of. The objective of the program is to improve both individual and organizational performance. Every employee no matter their educational background or level within the company had benefited from the in house training program. However, this is the only form of training that exists.

The firm is therefore advised to ensure that the program is consistently evaluated to ensure its compatibility with global changes and changes within the banking industry. The possibility of other forms of training like external courses should be considered to offer employees choice also allowing those who benefit from external courses to contribute their knowledge and observations to the existing system in the bank.

Study (Ayodeji, Michael & Tunde, 2010) entitled: "Enhancing Employees' Commitment to Organization through Training".

The role of training in human resource management practice has spur renewed and vigorous debate about the need for training and development. The debate has led academics and management to ponder on some issues germane to the benefits or otherwise of training.

Is training an investment in people or cost? If training is required, what are the criterion used to determine who should be trained and when to train? These questions have permeated management circle and those in HRM department. Recent years have seen training terms renamed as training and development or learning and development, a sign of the spate of debate on the issue. Given these flurry, this paper explores the relationship between training and employees' commitment to their organization. The paper was based on a survey of 250 employees and management staff of a financial firm based in the South Western part of Nigeria. Statistical Package for the Social Sciences (SPSS) was used to conduct several forms of analysis.

The analysis revealed some evidence that suggest a positive statistical significant relationship between the different levels of training and employees' commitment to organization. A regression analysis was conducted on the data collected. The study revealed a positive statistical significant relationship between the different levels of training and employees' commitment to the organization. This study concludes that the more the training giving to employees, the higher their level commitment to the organization.

Study (Ahmadi, Keshavarzi & Foroutan, 2011) entitled: "The Application of Information and Communication Technologies (ICT) and its Relationship with Improvement in Teaching and Learning".

This study has sought to investigate the influence of technology involved in teaching and learning. In order to gather information, a questionnaire containing six sections (personal data, software knowledge, skills and attitude, university atmosphere and

self-confidence) was used. The validity and reliability of the questionnaire had already been calculated. Statistical population, including faculty members of the branches of Islamic Azad University in Fars Province, and statistical sample were selected through random sample.

The results showed that: There was statistically significant relationship between university atmosphere and faculty members' self-confidence. There was not a significant statistical difference between female and male instructors in respect to software knowledge, skill and attitude. There was significant difference between assistant professors and instructors in respect to software attitude.

Study (Sanchez, Salinas & Harris, 2011) entitled: "Education with ICT in South Korea and Chile".

This study presents a linear analytical case study on the development of ICT within the educational systems of Chile and South Korea. Through a comprehensive meta-data analysis and bibliographic review, they collected information on both educational systems and their ICT adoption policies. Key differences necessary to understand how both countries have developed their educational systems by integrating ICT were analyzed, including the educational system structure, the organization of state entities responsible for educational ICT, cultural characteristics, the creation of policies regarding ICT in education, and the effectiveness of such policies for the expansion of infrastructure and the ICT curriculum integration.

We analyze these key differences in order to understand two cases of ICT integration initiatives on a national level, so that we might better understand the primary

factors that influence successful ICT integration, as well as those that may hinder progress in this area.

Study (DeGroote, 2011) entitled: "An Empirical Investigation of the Impact of Information Technology on Supply Chain Agility and Firm Performance among U.S. Manufacturers".

This study investigated the extent to which Information Technology (IT) improves supply chain agility as measured by the ability to sense and respond to market changes, and the impact supply chain agility has on firm performance. The research assessed whether supply chain agility is moderated by market, firm, and supply chain factors. Lastly, this study investigated the mediation effects of agility on IT impact on firm performance. Data were collected from an online survey of supply chain executives at 193 U.S. manufacturing firms from various industries.

The results of the study indicate that IT increases the supply chains ability to sense market changes by improving information quality in terms of adequacy, accuracy, accessibility, and timeliness. IT also increases the supply chains ability to respond to market changes by developing and executing a coordinated plan with the supply chain in terms of cost, quality, and timeliness. Supply chain agility improves firm performance in terms of sales, market share, profitability, speed to market, and customer satisfaction, albeit in varying degrees. Results also indicate that IT impact on supply chain agility is not significantly moderated by market, firm, and supply chain factors. Finally, the results indicate that IT impact on firm performance is through agility. Based on the results of this

study, three prioritization strategies are suggested for deploying IT with maximum impact on agility and firm performance.

Study (Otaghsara, Mohseni & khalili, 2012) entitled: "The role of ICT in-service training of employees of government Organization (Case Study: Institute of Water and Power Unit, Mazandaran)".

The purpose of this study also examined the impact of the use of ICT in-service training of staff is, therefore, through a questionnaire on the use of ICT in the process of educating employees about the impact on job satisfaction, learning, improving and upgrading their skill level and also the effect of increasing efficiency and improving the effectiveness of the training process has been collected. The statistical Society of this research is the staff trained in Water & Power Unit, Mazandaran.

The study sample included 150 people. The results of this study indicate that the hypothesis is accepted and the use of ICT in the education of learners in higher job satisfaction, level of knowledge and skills learners, enhance efficiency and effectiveness of the training process is effective.

Study (Karim, Huda & Khan 2012) entitled: "Significance of Training and Post Training Evaluation for Employee Effectiveness: An Empirical Study on Sainsbury's Supermarket Ltd, UK".

The main purpose of this study is to find the answer of how training refers to the acquisitions of knowledge, skill and attitudes. Knowledge, Skills and attitudes are the most essential ingredient for efficient conduct of business through the human resources of an organization. But the impact of these valuable ingredients is often reduced by lack of effective training program. The research paper tries to highlight the necessity of effective training and after training evaluation in designing and implementing training programs for the employees in the retail sector specifically for Sainsbury's supermarket Ltd, UK.

The paper also facilitates the organization to better understand the necessity of post training evaluation leading to effective employee engagement in designing improved training programs to seize the present and future training opportunities.

Study (Al-Qudah, Saaty & Al-Momani, 2012) entitled: "Impact of Information Technology on Management Control at Al Bashir Public Hospital: A Case Study of Jordan".

The purpose of this study is to measure the role of information systems in management control at AL-Bashir Public hospital. The study included a group of 70 questionnaire staff administrators' questions and had distributed it randomly on a sample of population study, 61 have been subjected to statistical analysis questionnaire at a rate of 87% of the population of the study, and using the program of (SPSS) package to extract statistical analysis results.

The researcher reached to a significant effect of the components of information systems to management control at Al Bashir hospital. In the light of theoretical studies and

statistical analysis of this study sample reached the following conclusion: 1) This research found that the level of software in hospital is high and available 2) As of the results are concerned the physical dimension of computer sub-parts is of more important in terms of relatively level compared with other sub-dimensions of role of information systems in management control, and followed then with sub-networks of local and national levels.

The study also concluded many recommendations as obvious that hospital directors shall execute many training courses to enable the process of control connotation among staff members, and other growth segments in the field of information systems and mere latest technology at this topic.

Study (Abou-Moghli, Al-bourini & Al-Habeese, 2012) entitled: "Attitudes of Municipalities Managers Toward the effect of Information Technology (IT) on Administrative Decision-Making Effectiveness: A Case Study on Jordan Valley Area Municipalities".

The purpose of this study is to demonstrate the attitudes of the managers working in the municipalities sector in Jordan toward the effect of the information technology (IT) on the managerial decision-making effectiveness; with an empirical study on the Jordan Valley area municipalities. The study underlined the relationship between the administrative decisions in this sector and the information technology, as well as the extent of the decision-makers in this sector in utilizing the IT for acquiring the required information. The study employed the quantitative tests such as one sample t- test. The study population included all the municipality managers working in the Jordan Valley, through a randomized

sample amounted for 10% of the total study population. The study sample consisted of (100) managers who employ information technology in decision making, who are working in (7) municipalities. Data collection was made using a questionnaire specially designed for this purpose. Based on the study hypotheses, the researcher approached many findings, most important is: there is a statistically significant relationship between IT (employed systems, software, communication networks and databases) and the effectiveness of administrative decision-making already employed in the municipalities sector.

Study (Jawabreh, Allahham, Alrjoub & Ahmad, 2012) entitled: "Impact of Information Technology on Profitability of Airlines Industry: A Case Study of Royal Jordanian Airlines".

The purpose of this study is to explore the Impact of information technology on profitability of airlines industry "a case study of Royal Jordanian Airlines, The data collected from the financial statement of Royal Jordanian Airlines is analyzed by using financial and statistical tools. The tools and techniques issued in this study are discussed here. It is very difficult to cover several of aspects of financial management of Royal Jordanian Airlines; hence, focus has been given to study the profitability, capital structure & working capital management.

The financial measures of performance are well adequate to monitor returns on IT. This is important as IT specialists always require special measures for IT performance, the current results show that IT do affect the aggregate financial performance measures. Which make them suitable for IT investments assessments.

Study (Singh, Mohanty, 2012) entitled: "Impact of Training Practices on Employee Productivity: A Comparative Study".

The study studies the effects of training on employee productivity. This paper provides a review of the current evidence of such a relationship and offers suggestions for further investigation. An extensive review of the literature in terms of research findings from studies that have been trying to measure and understand the impact that individual HR practices like training have on employee productivity across various sectors The focal point of our review is on training practices and employee productivity and their relationship. In conclusion, the research findings are varied. Some studies have found a positive association, some negative and some no association whatsoever. The study concludes with directions for future research by applying different level of analysis on exploring the impact of training practices on employee productivity.

(2-6) Distinctive Features of the Current Study

Most other studies are largely focused on the experiences of developed countries. There is a scarcity of studies in information and communication technology in less developed countries, particularly in the Jordanian pharmaceutical manufacturing sector. In other words, studies in this field and sector are rare.

Chapter Three

Chapter Three

Methods and Procedures

3.1 Introduction

3.2 Methodology of the study

3.3 Population of the study

3.4 Sample and Unite of Analysis

3.5 Collection of Data

3.6 Instrument Study

3.7 Dimensions of the Study Questionnaire

3.8 Validity and Reliability Analysis

3.9 Data Analysis and Statistical Techniques

Chapter Three

Methods and Procedures

(3-1) Introduction

This chapter is divided into the following nine sections: Methodology of the Study; Population of the Study; Sample and Unite of Analysis; Collection of data; Dimensions of the Study Questionnaire; Instrument of the Study; Questionnaire validity and Reliability Analysis; Data Analysis and Statistical Techniques.

(3-2) Methodology of the study

The current study employs a quantitative approach which is consistent with the nature of the study problem and its questions. Employing a quantitative approach enables

the current study to reach and collect empirical evidence from a wider spectrum of the current study population.

(3-3) Population of the study

The population of the current study consists of 15 pharmaceutical manufacturing companies (Amman Chamber of Industry Statistical Manual, 2010). Appendix (C) The manufacturing sector is selected because of its significant role in the wealth of Jordan economy and it is considered an economic engine for growth. According to the investment board of Jordan the manufacturing sector is accounted to be one of the integral sectors in the Jordanian economy. Fifteen company of pharmaceutical manufacturing will be chosen to analyze the topic of the role of training on the relationship between information and communication technology and employee performance.

(3-4) Sample and Unite of Analysis

The survey unit of analysis consisted of (120) managers in different departments such as managers of human resource department, production and engineering managers, as well as research and development managers. To collect the primary data (120) questionnaire were distributed to them, out of which (115) questionnaire were returned and only (102) questionnaire were suitable for statistical analysis which led to (85%) response rate.

(3-5) Collection of Data

There are two types of data which is usually used in research primary and secondary data. The primary data are those which are collected for the first time, and thus happen to be original in character. The secondary data on the other hand, are those which have already been collected by someone else and which have already been passed through the statistical process (Neuman, 2005). Secondary data is very helpful in order to grasp knowledge about topic of the study. It helps the researcher to know the topic in detail and helps the researcher to confine the study and also guides to the core issues that are researchable (Kothari, 2005). For this study both primary and secondary sources of data are used for collection of information.

(3-5-1) Primary Sources

The study focused on collecting the primary data about the researched companies through a structured questionnaire for the purposes of the study. The questionnaires were hand-delivered with a covering letter by the researcher to the managers, in order to complete the primary data required for the study. Hand-delivery of the questionnaire is beneficial, as the researcher may be asked to clarify or answer some questions, or otherwise listen to suggestions may be raised by the respondents.

(3-5-2) Secondary Sources

The study used the available secondary data sources including: books, research articles, former studies, data available with the general statistics department, Amman

Chamber of Industry, as well as many of the electronic websites, in order to collect study-related data, for the sake of identifying the study problem, formulating its questions, identifying its variables, and supporting its theoretical framework.

(3-6) Instrument Study

The questionnaire consisted of four sections; the first section is on the general information about the respondent. The second section is on information and communication technology dimensions. The third, section presents information on training. Finally, the fourth section is about employee's performance in the respective organizations. The questionnaire used five point Likert scale measurement, respondents will be provided with explanations to use the response scale such as *"using the following scale please, tick (√) on one number following each statement that represents your level of AGREEMENT with the following"*.

(3-7) Dimensions of the Study Questionnaire

The following table explains the dimensions of the study questionnaire.

Table (3.1) the study instrument (Questionnaire) Dimensions

Dimensions	Sub dimensions	Number of items of each dimension	Total number of items
Information and communication technology (ICT)	Hardware	3	12
	Software	3	
	Database	3	

	Networks	3	
Training	Training	6	6
Employee	Quantity of work	2	7
performance	Quality of work	2	
	Speed of work Achievement	3	

And accordingly the study instrument (questionnaire) used a five-point likert scale response as explained below:

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

However, the relative importance is assigned as in the following equation:

Level of Importance = $\dfrac{\text{Upper limit of response} - \text{Lower limit of response}}{\text{Number of Levels}}$

Therefore, Three levels identified, High, Mid and Low. Table (4.1) illustrates the range of importance level:

Table (3.2)

Range of Level of Importance Scale

No.	Mean Range	Level
1.	Less than or equal 2.33	Low

2.	More than 2.33 to 3.66	Mid
3.	More than 3.67	High

(3-8) Validity and Reliability Analysis

(3-8-1) Validity

By validity it is meant that the instrument should contain items related to the study variables, and that it measures them accurately and clearly. To make sure of this, the questionnaire had been sent to a number of specialist reviewers (see appendix B p.114), whose notes were taken into consideration to improve some of the questionnaire items in a manner that fits the study variables measurements.

(3-8-2) Reliability

After validity was established, the items of the study's questionnaire were tested for reliability. Reliability is an indication of stability and internal consistency with which the instrument measures the concept and helps assess the goodness of a measure (Zikmund, 2000: 280).

Reliability was assessed through examining the Cronbach Alpha coefficient of the questionnaire items (Hair et al., 2006). While the Cronbach's Alpha coefficients should range from zero to one, table (3.1) shows that reliability coefficients for all items were above the cutoff point of 60% used in the current study. The reliability coefficients for all the items ranged from 0.647 to 0.893. Hence, the current study's questionnaire items were all of reasonable satisfactory reliability.

Table (3.3) Reliability Analysis

Dimension	Sub Dimensions	Number of Items	Reliability Coefficient
Information and communication technology (ICT)	Hardware	3	0.647
	Software	3	0.742
	Database	3	0.740
	Networks	3	0.672
Training	Learning	6	0.848
Employee performance	Quantity of work	2	0.712
	Quality of work	2	0.718
	Speed of work	3	0.893

	Achievement		
All Dimensions		25	0.888

It is obvious through the above Cronbach's Alpha values that the reliability coefficients of all the study variables are high and suitable for the current study objectives.

(3-9) Data Analysis and Statistical Techniques

The current study utilized the statistical package for social sciences (SPSS) version 16 for windows in order to analysis the collected data.

The data is first checked for outliers before starting the analysis. Missing or extreme data will be omitted from the analysis process. Then the data was transform-computed, and was recorded with new names, especially nominal scale data as used according to the study variables.

Additionally, statistical analysis techniques were conducted on the data collected through applying, descriptive statistics, and regression analysis in order to test the hypotheses developed in the current study with regards to the relationship amongst study variables.

Chapter Four

Chapter Four

Results & Hypotheses Testing

4.1 Introduction

4.2 Demographic variables of the study sample

4.3 Descriptive Analysis of Study Variable

4.4 Study Hypotheses Testing

Chapter Four

Results & Hypotheses Testing

(4-1) Introduction

This chapter explains the results of the demographic variables analysis as well as the statistical analysis of the data collection for study questions and hypotheses. The data analysis included a description of the means and standard deviations, ranking and level of importance for study questions and multiple regression analysis to test the hypotheses.

(4-2) Demographic variables of the study sample

The following table (4.1) presents the demographic variables of the study which includes (gender, age, Educational level, Years of Experience in the current company, Current job position).

Table (4.1) Distribution of the Sample according to demographic variables (N = 102).

No.	Variable	Category	Frequency	Percentage
1.	Gender	Male	68	66.7
		Female	34	33.3
2.	Age	Less than 30 years	31	30.4
		From 30 - 39 years	41	40.2
		From 40 – 49 years	21	20.6

		50 years or more	9	8.8
3.	Educational level	High school or less	7	6.9
		Bachelor	84	82.4
		Master	11	10.8
		PhD	0	0
4.	Years of Experience in the current company	1 – 5 years	44	43.1
		6 – 10 years	18	17.6
		11 – 15 years	19	18.6
		15 years or more	21	20.6
5.	Current job position	Manager	38	37.3
		Assistant Manager	17	16.7
		Department Head	9	8.8
		Assistant Department Head	38	37.3

Gender

The highest percentage of respondents was "Males" (66.7%) while (33.3%) was "Females".

Age

The highest percentage of respondents was (40.2%) were in the age group "from 30 - 39 years", while the lowest was (8.8%) in the age group "50 years or more".

Educational level

The highest percentage (82.4%) of respondents hold a "Bachelor Degree", while the lowest was (0%) holds a "PhD Degree".

Years of Experience in the current company

The highest percentage of respondents was (43.1%) were in the years of experience "from 1-5 year", while the lowest was (17.6%) "From 6 – 10 years".

Current job position

The highest percentage of respondents was (37.3%) in the "Manager and Assistant Department Head" category, while the lowest was (8.8%) "Department head".

(4-3) Descriptive Analysis of Study Variable

The following section seeks to display and analyze the arithmetic means and standard deviations of the responses of the study sample on the questionnaire items regarding the independent, mediator and dependent variables

Table (4.2): Descriptive statistics of Hardware

Item	Statement	Mean	S.D	Rank	Level of Importance
6	The computer is an essential part in the completion of the internal and external processes in the company.	4.6961	0.52254	1	High
7	There are a sufficient number of computers to provide information relevant to the implementation of the processes within the company.	4.3333	0.66501	2	High
8	Computer hardware specifications consistent with the information systems used within the company.	4.2941	0.60670	3	High
	Grand Mean & Standard Deviation of **Hardware**	4.4412	0.59808		

From the Table (4.2) the means range was (4.2941 - 4.6961), the highest means was for the item "The computer is an essential part in the completion of the internal and external processes in the company" with a mean of (4.6961), and STD of (0.52254) while the lowest means was for an item "Computer hardware specifications consistent with the information

systems used within the company." with a mean of (4.2941) and STD of (0.60670). The

overall mean was (4.4412) with STD of (0.59808) with High level of communality.

Table (4.3): Descriptive Statistics of Software

Item	Statement	Mean	S.D	Rank	Level of Importance
9	There is available software in the company designed to perform various operations.	4.2647	0.67379	2	High
10	Software's is updated whenever the need arises.	4.1667	0.75889	3	High
11	Software helps the company departments to access to information.	4.3333	0.60252	1	High
	Grand Mean & Standard Deviation of **Software**	4.2549	0.6784		

Table (4.3) indicated the means range was (4.1667 - 4.3333), the highest means was for the

item "Software helps the company departments to access to information." with a mean of

(4.3333), and STD of (0.60252) while the lowest means was for an item "Software's is

updated whenever the need arises." with a mean of (4.1667) and STD of (0.75889). The

overall mean was (4.2549) with STD of (0.6784) with High level of communality.

Table (4.4): Descriptive Statistics of Database

Item	Statement	Mean	S.D	Rank	Level of Importance
12	Database helps to provide the data and information about the employees of the company.	4.4216	0.58760	1	High

13	Database provides the required data in an efficient manner and timely appropriate within the company.	4.2549	0.71319	2	High
14	Database provides the required reports for managers in the process of evaluating the performance of employees.	4.0392	0.70249	3	High
	Grand Mean & Standard Deviation of **Database**	4.2386	0.66776		

From the Table (4.4) the means range was (4.0392 - 4.4216), the highest means was for the item "Database helps to provide the data and information about the employees of the company." with a mean of (4.4216), and STD of (0.58760) while the lowest means was for an item "Database provides the required reports for managers in the process of evaluating the performance of employees." with a mean of (4.0392) and STD of (0.70249). The overall mean was (4.2386) with STD of (0.66776) with High level of communality.

Table (4.5): Descriptive Statistics of Networks

Item	Statement	Mean	S.D	Rank	Level of Importance
15	Networks provide a communication medium with high efficiency.	4.2941	0.71183	1	High
16	Networks connect all users in several sources of information at the same time which helps in speed business performance.	4.1471	0.60357	2	High
17	Internal information networks used to connect the units of the company with the outside community.	3.9510	0.74962	3	High
	Grand Mean & Standard Deviation of **Networks**	4.1317	0.68834		

Table (4.5) indicated the means range was (3.9510 - 4.2941), the highest means was for the item "Networks provide a communication medium with high efficiency." with a mean of

(4.2941), and STD of (0.71183) while the lowest means was for an item "Internal information networks used to connect the units of the company with the outside community." with a mean of (3.9510) and STD of (0.74962). The overall mean was (4.1317) with STD of (0.68834) with High level of communality.

Table (4.6): Descriptive statistics of Training

Item	Statement	Mean	S.D	Rank	Level of Importance
18	Employees are trained in information systems applied in the company.	3.9020	0.72453	5	High
19	Training plans and programs of the company under of continuous development in accordance with technological developments.	3.9118	0.64644	4	High
20	Involve all employees in the company in training courses for the use of information systems in their business.	3.7059	0.76544	6	High
21	Gain new skills from training increase the chance in harmony with the work.	4.1863	0.55812	2	High
22	Training provides the possibility of doing business easily in the company.	4.2157	0.59081	1	High
23	Company believes that training the best way to acquire the necessary skills to members of their employees.	4.0686	0.78677	3	High
	Grand Mean & Standard Deviation of Training	3.9984	0.67868		

From the Table (4.6) the means range was (3.7059 - 4.2157), the highest means was for the item "Training provides the possibility of doing business easily in the company." with a mean of (4.2157), and STD of (0.59081) while the lowest means was for an item "Involve all employees in the company in training courses for the use of information systems in their

business." with a mean of (3.7059) and STD of (0.76544). The overall mean was (3.9984)

with STD of (0.67868) with High level of communality.

Table (4.7): Descriptive statistics of Quantity of Work

Item	Statement	Mean	S.D	Rank	Level of Importance
24	Information and communication technology helps to achieve a larger number of tasks.	4.4510	0.50005	1	High
25	Information and communication technology helps to reduce workload.	4.2843	0.53357	2	High
26	Information and communication technology helps to save time.	4.1733	0.52346	3	High
	Grand Mean & Standard Deviation of **Quantity of Work**	4.3028	0.51902		

Table (4.7) indicated the means range was (4.2843 - 4.4510), the highest means was for the

item "Information and communication technology helps to achieve a larger number of

tasks." with a mean of (4.4510), and STD of (0.50005) while the lowest means was for an

item "Information and communication technology helps to reduce workload." with a mean

of (4.2843) and STD of (0.53357). The overall mean was (4.3677) with STD of (0.51681)

with High level of communality.

Table (4.8): Descriptive statistics of Quality of Work

Item	Statement	Mean	S.D	Rank	Level of Importance
27	Information and communication technology helps to reduce errors.	4.2941	0.55559	2	High
28	Information and communication technology helps to achieve the work within the required specifications.	4.3922	0.54785	1	High
29	Information and communication technology helps to improve work continuously.	4.2721	0.53673	3	High
	Grand Mean & Standard Deviation of **Quality of Work**	4.3194	0.54672		

From the Table (4.8) the means range was (4.2941 - 4.3922), the highest means was for the item "Information and communication technology helps to achieve the work within the required specifications." with a mean of (4.3922), and STD of (0.54785) while the lowest means was for an item "Information and communication technology helps to reduce errors." with a mean of (4.2941) and STD of (0.55559). The overall mean was (4.3432) with STD of (0.55172) with High level of communality.

Table (4.9): Descriptive Statistics of Speed of Work Achievement

Item	Statement	Mean	S.D	Rank	Level of Importance
28	Information and communication technology helps to save time.	4.6275	0.48587	1	High
29	Information and communication technology helps to provide effort.	4.5490	0.51947	2	High
30	Information and communication technology helps to achieve greater flexibility in work.	4.5000	0.52180	3	High
	Grand Mean & Standard Deviation of **Speed of Work Achievement**	4.5588	0.50904		

From the Table (4.9) the means range was (4.5000 - 4.6275), the highest means was for the item "Information and communication technology helps to save time." with a mean of (4.6275), and STD of (0.48587) while the lowest means was for an item "Information and communication technology helps to achieve greater flexibility in work." with a mean of (4.5000) and STD of (0.52180). The overall mean was (4.5588) with STD of (0.50904) with High level of communality.

(4-4) Study Hypotheses Testing

The multiple liner regressions were used to test the hypothesis of the study. Further, the study Hypotheses where tested as per the role of thumb that provides to accepts the hypotheses if its calculated value was higher than its tabulated value.

First Main Hypothesis

The first hypothesis postulated "There is statistical significant impact of training at the level ($\alpha \leq 0.05$) on employees' performance."

Table (4.10) indicated the results of regression analysis for testing the first hypothesis of the study.

Table (4.10): Simple Regression Results for the Impact of training on Employees Performance

Variable	R^2	F Calculated	F Tabulated	Beta	Sig.
Employees performance	0.143	16.684	1.39	0.378	0.000

The results of the regression analysis that regress training on employee's performance are shown in table (4.10). It indicated that training explained 14.3% of the variance, and the value of Beta is (0.378), and the value of calculated F (16.684) which is higher than tabulated F value (1.39) at the confidence level ($\alpha \leq 0.05$), and the value of statistical significance level is (0.000) which is less than the value of the confidence level ($\alpha \leq 0.05$). Thus, rejected the null hypothesis and accepted the alternative hypothesis, in an indication that there is a statistical significant impact of training on employee's performance.

Sub Hypothesis 1-1

The sub hypothesis (1-1) postulated "There is statistical significant impact of training at the level ($\alpha \leq 0.05$) on quantity of work".

Table (4.11) indicated the results of regression analysis for testing the first hypothesis of the study.

Table (4.11): Simple Regression Results for the Impact of Training on Quantity of work

Variable	R^2	F Calculated	F Tabulated	Beta	Sig.
Quantity of work	0.075	8.053	1.39	0.273	0.000

The results of the regression analysis that regress training on quantity of work are shown in table (4.13). It indicated training explained 7.5% of the variance, and the value of

Beta is (0.273), and the value of calculated F (8.053) which is higher than tabulated F value (1.39) at the confidence level ($\alpha \leq 0.05$), and the value of statistical significance level is (0.000) which is less than the value of the confidence level ($\alpha \leq 0.05$). Thus, rejected the null hypothesis and accepted the alternative hypothesis, in an indication that there is a statistical significant impact of training on quantity of work.

Sub Hypothesis 1-2

The sub hypothesis (1-2) postulated "There is statistical significant impact of training at the level ($\alpha \leq 0.05$) on quality of work".

Table (4.12) indicated the results of regression analysis for testing the first hypothesis of the study.

Table (4.12): Simple Regression Results for the Impact of Training on Quality of work

Variable	R^2	F Calculated	F Tabulated	Beta	Sig.
Quality of work	0.087	9.491	1.39	0.294	0.000

The results of the regression analysis that regress training on quality of work are shown in table (4.12). It indicated training explained 8.7% of the variance, and the value of Beta is (0.294), and the value of calculated F (9.491) which is higher than tabulated F value (1.39) at the confidence level ($\alpha \leq 0.05$), and the value of statistical significance level is (0.000) which is less than the value of the confidence level ($\alpha \leq 0.05$). Thus, rejected the null

hypothesis and accepted the alternative hypothesis, in an indication that there is a statistical significant impact of training on quality of work.

Sub Hypothesis 1-3

The sub hypothesis (1-3) postulated "There is statistical significant impact of training at the level ($\alpha \leq 0.05$) on speed of work achievement".

Table (4.13) indicated the results of regression analysis for testing the first hypothesis of the study.

Table (4.13): Simple Regression Results for the Impact of Training on Speed of work achievement

Variable	R^2	F Calculated	F Tabulated	Beta	Sig.
Speed of work achievement	0.129	14.807	1.39	0.359	0.000

The results of the regression analysis that regress training on speed of work achievement are shown in table (4.13). It indicated training explained 12.9% of the variance, and the value of Beta is (0.359), and the value of calculated F (14.807) which is higher than tabulated F value (1.39) at the confidence level ($\alpha \leq 0.05$), and the value of statistical significance level is (0.000) which is less than the value of the confidence level ($\alpha \leq 0.05$). Thus, rejected the null hypothesis and accepted the alternative hypothesis, in an indication that there is a statistical significant impact of training on speed of work achievement.

The Second Main Hypothesis

The second main hypothesis postulated "There is statistical significant impact of information and communication technology at the level ($\alpha \leq 0.05$) on employee's performance".

Table (4.14) indicated the results of multiple regression analysis for testing the second hypothesis of the study.

Table (4.14): Simple Regression Results for the Impact of Information and Communication Technology on Employee's Performance

Variable	R^2	F Calculated	F Tabulated	Beta	Sig.
Employees Performance	0.136	15.699	1.39	0.368	0.000

The results of the regression analysis that regress the four components of information and communication technology on employee's performance are shown in table (4.14). It indicated that the four components together explained 13.6% of the variance, and the value of Beta (0.368), and the value of calculated F (15.699) which is higher than tabulated F value (1.39) at the confidence level ($\alpha \leq 0.05$), and the value of statistical significance level is (0.000) which is less than the value of the confidence level ($\alpha \leq 0.05$). Thus, rejected the null hypothesis and accepted the alternative hypothesis, in an indication that there is a statistical significant impact of information and communication technology on employee's performance.

Sub Hypothesis 2-1

The sub hypothesis (2-1) postulated "There is statistical significant impact of information and communication technology at the level ($\alpha \leq 0.05$) on quantity of work".

Table (4.15) indicated the results of regression analysis for testing the first sub hypothesis of the study.

Table (4.15): Simple Regression Results for the Impact of Information and Communication Technology on Quantity of Work

Variable	R^2	F Calculated	F Tabulated	Beta	Sig.
Quantity of Work	0.145	17.014	1.39	0.381	0.000

The results of the regression analysis that regress the four components of information and communication technology on quantity of work are shown in table (4.15). It indicated that the four components together explained 14.5% of the variance, and the value of Beta (0.381), and the value of calculated F (17.014) which is higher than tabulated F value (1.39) at the confidence level ($\alpha \leq 0.05$), and the value of statistical significance level is (0.000) which is less than the value of the confidence level ($\alpha \leq 0.05$). Thus, rejected the null hypothesis and accepted the alternative hypothesis, in an indication that there is a statistical significant impact of information and communication technology on quantity of work.

Sub Hypothesis 2-2

The sub hypothesis (2-2) postulated "There is statistical significant impact of information and communication technology at the level ($\alpha \leq 0.05$) on quality of work".

Table (4.16) indicated the results of regression analysis for testing the second sub hypothesis of the study.

Table (4.16): Simple Regression Results for the Impact of Information and Communication Technology on Quality of Work

Variable	R^2	F Calculated	F Tabulated	Beta	Sig.
Quality of Work	0.050	5.258	1.39	0.224	0.000

The results of the regression analysis that regress the four components of information and communication technology on quality of work are shown in table (4.16). It indicated that the four components together explained 5.0% of the variance, and the value of Beta (0.224), and the value of calculated F (5.258) which is higher than tabulated F value (1.39) at the confidence level ($\alpha \leq 0.05$), and the value of statistical significance level is (0.000) which is less than the value of the confidence level ($\alpha \leq 0.05$). Thus, rejected the null hypothesis and accepted the alternative hypothesis, in an indication that there is a statistical significant impact of information and communication technology on quality of work.

Sub Hypothesis 2-3

The sub hypothesis (2-3) postulated "There is statistical significant impact of information and communication technology at the level ($\alpha \leq 0.05$) on speed of work achievement".

Table (4.17) indicated the results of regression analysis for testing the third sub hypothesis of the study.

Table (4.17): Simple Regression Results for the Impact of Information and Communication Technology on speed of work achievement

Variable	R^2	F Calculated	F Tabulated	Beta	Sig.
Speed of Work Achievement	0.101	11.292	1.39	0.319	0.000

The results of the regression analysis that regress the four components of information and communication technology on speed of work achievement are shown in table (4.17). It indicated that the four components together explained 10.1% of the variance, and the value of Beta (0.319), and the value of calculated F (11.292) which is higher than tabulated F value (1.39) at the confidence level ($\alpha \leq 0.05$), and the value of statistical significance level is (0.000) which is less than the value of the confidence level ($\alpha \leq 0.05$). Thus, rejected the null hypothesis and accepted the alternative hypothesis, in an indication that there is a statistical significant impact of information and communication technology on speed of work achievement.

The Third Main Hypothesis

The third main hypothesis postulated "There is statistical significant impact of training and information and communication technology at the level ($\alpha \leq 0.05$) on employees' performance".

Table (4.18) indicated the results of multiple regression analysis for testing the third hypothesis of the study.

Table (4.18): Multiple Regression Results for the Impact of Training and Information and Communication Technology on Employees' Performance

Variable	R^2	F Calculated	F Tabulated	Sig.
Employees' Performance	0.196	12.046	1.39	0.000

The results of the multiple regression analysis that regress Training and information and communication technology on Employees' Performance are shown in table (4.18). It indicated that both together explained 19.6% of the variance, and the value of calculated F (12.046) which is higher than tabulated F value (1.39) at the confidence level ($\alpha \leq 0.05$), and the value of statistical significance level is (0.000) which is less than the value of the confidence level ($\alpha \leq 0.05$). Thus, rejected the null hypothesis and accepted the alternative hypothesis, in an indication that there is a statistical significant impact of training and information and communication technology on employees' performance. The following table shows the significant impact of each one of the independent variables.

Table (4.19): Unstandardized Coefficients and Standardized Coefficients of Multiple Regressions for Training and Information and Communication Technology

Independent Variables	Unstandardized Coefficients	Standardized Coefficients		
	B	Beta	t value	Sig.
(Constant)	2.553		6.361	0.000
Training	0.205	0.271	2.718	0.008
Information and Communication Technology	0.251	0.254	2.548	0.012

Dependent Variables: Employees' Performance

The results in table (4.19) explained that training is the most significant where (Beta= 0.271, Sig= 0.008) and it positively and directly regresses on employees performance, followed by information and communication technology where (Beta= 0.254, Sig= 0.012) and it positively and directly regresses on employees performance.

Chapter Five

Chapter Five

Conclusions & Recommendations

5.1 Conclusions

5.2 Recommendations

Chapter Five

Conclusions & Recommendations

(5-1) Conclusions

This study raised a number of questions, and developed hypotheses related to the study variables. This study reached many results that contributed to solving the study problem, answering the study questions and its hypotheses. The main results can be summarized as follows:

1. The importance level of training in pharmaceutical manufacturing companies in Amman was high which showed there was awareness among respondents in relation to the dimension of training although they might not be conducting training program in a systematic way but they are realizing and agreeing to its important.

2. The importance level of information and communication technology in pharmaceutical manufacturing companies in Amman was high which indicate there was awareness among respondents in relation to the dimension of information and communication technology which therefor can enhance employees' performance through information and communication technology tools.

3. The importance level of employees' performance in pharmaceutical manufacturing companies in Amman was high. The respondents answers' indicated that

employees' performance is important and is enhance by information and communication technology usage as well as going through training programs.

4. There was statistical significant impact of training on employee performance at level at level ($\alpha \leq 0.05$). The results showed that there is a statistically significant impact between members of the research sample answers in relation to dimension which provides. The researcher reply these results that the concept of training is a process planned to facilitate learning so that people can become more effective in carrying out of their duties to improve organizational performance through the increasing level of individual competences.

5. There was a statistical significant impact of Information and communication technology on employees' performance at level ($\alpha \leq 0.05$). The results showed that there is a statistically significant impact between members of the research sample answers in relation to dimension which provides. The researcher reply these results that the concept of information and communication technology to enhance the knowledge that have been created by developing digital networks in the organization.

6. There was a statistical significant impact of training and Information and communication technology on employees' performance at level ($\alpha \leq 0.05$). The results showed that there is a statistically significant impact between members of the research sample answers in relation to dimension which provides. The researcher reply these results that the concept of the new technology tools may also

increase the flexibility which reflect to achieve more work by getting a training program and that will led to do the work in professional manner.

(5-2) Recommendations

Based on the study results the researcher suggests the following recommendations for researchers and pharmaceutical manufacturing managers:

1. Enhancing information and communication technology tools is important in pharmaceutical manufacturing companies to improve individual employees' performance in terms of quantity, quality, and speed of work achievement,

2. It is recommended to keep an updated technology tools in pharmaceutical manufacturing companies which will help employees to perform their work accurately, efficiently and effectively.

3. Delivering employees' training programs related to new software applications is necessary to improve individual employees' performance due its functional role in the learning process.

4. Promoting information and communication technology culture by articulating and executing more frequent training programs specially related to technology.

5. Managers should design training procedural and standards in order to advance the employee individual performance through more effective performance appraisal.

6. Pharmaceutical Manufacturing companies should consider financial and nonfinancial incentives to encourage more effective employees' performance.

7. Future research avenues could be conducted in different sectors such as in service organization. Or incorporating different variables that have explanations regarding employees' performance.

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Appendixes

(Appendix A)

The Academic Arbitrators

University	Name	No.
MEU Middle East University	Dr. Mohammad Al Noaimi	1.
MEU Middle East University	Dr. Laith AL-Rubaiee	2.
MEU Middle East University	Dr. Hameed Al Shaibi	3.
MEU Middle East University	Dr. Mohammad Al Shoura	4.
MEU Middle East University	Dr. Rae'd Hanandeh	5.
MEU Middle East University	Dr. Kamil Hawajreh	6.
NYIT New York Institute of Technology	Dr. Mohammad Nussair	7.

NYIT New York Institute of Technology	Dr. Moade Shubita	8.
NYIT New York Institute of Technology	Dr. Ahmad Qatamin	9.
NYIT New York Institute of Technology	Ghassan AlotaibiDr.	10.

(Appendix B)   **بسم الله الرحمن الرحيم**

الإخوة والأخوات مديري شركات صناعة الأدوية المحترمين

تحية طيبة وبعد،،،

يقوم الباحث بإجراء دراسة علمية حول " أثر التدريب و تكنولوجيا المعلومات و الاتصالات

على أداء العاملين: دراسة ميدانية على شركات صناعة الأدوية في عمان". وذلك كمتطلب

للحصول على درجة الماجستير في إدارة الاعمال من جامعة الشرق الأوسط .

يرجى التكرم بالإجابة عن أسئلة الاستبانة المرفقة والتي لن تستخدم البيانات الواردة فيها

إلا لغايات البحث العلمي فقط.

نحن نثق بآرائكم وستكون هذه الآراء موضع إعتزاز و تقدير

المشرف	الباحث
د. علي فلاح الضلاعين	أيمن زكريا نجيب

الجزء الأول: البيانات الشخصية للمستجيب: يرجى وضع إشارة (√) في الفراغ المقابل للإجابة

التي تراها مناسبة:

(1) الجنس

	أنثى	☐		ذكر	☐

(2) العمر

☐	30 – 39 سنة		☐	أقل من 30 سنة
☐	50 فأكثر		☐	40 – 49 سنة

(3) المستوى التعليمي

☐	بكالوريوس		☐	ثانوية عامة فأقل

☐ دكتوراه   ☐ ماجستير

(4) عدد سنوات الخبرة في الشركة الحالية

☐ 6 – 10 سنوات   ☐ 1 – 5 سنوات

☐ أكثر من 15 سنة   ☐ 11 – 15 سنة

(5) المسمى الوظيفي الحالي

☐ مساعد مدير   ☐ مدير

☐ مساعد رئيس قسم   ☐ رئيس قسم

الجزء الثاني: تكنولوجيا المعلومات والاتصال: يرجى وضع إشارة (√) تحت العبارة التي تراها مناسبة.

المعيار الأول: المعدات

6. تعد أجهزة الحاسوب جزءاً أساسياً في إنجاز العمليات الداخلية و الخارجية في الشركة

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

7. عدد أجهزة الحاسوب كافية لتوفير المعلومات المناسبة للقيام بالعمليات داخل الشركة

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

8. مواصفات اجهزة الحاسوب تنسجم مع نظم المعلومات المستخدمة داخل الشركة

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

المعيار الثاني: البرمجيات

9. يتوفر في الشركة برمجيات متعددة مصممة لإنجاز العمليات المختلفة

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

10.يتم تحديث البرمجيات المستخدمة كلما إقتضت الحاجة

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

11.تساعد البرمجيات أقسام الشركة المختلفة في الحصول على المعلومات

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

المعيار الثالث: قاعدة البيانات

12.تساعد قاعدة البيانات المستخدمة على توفير البيانات و المعلومات عن العاملين في الشركة

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

13. قاعدة البيانات المستخدمة توفر البيانات المطلوبة بطريقة فعالة و في الوقت المناسب داخل الشركة

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

14.قاعدة البيانات المستخدمة توفر التقارير اللازمة للمدراء في عملية تقييم أداء العاملين

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

المعيار الرابع: الشبكات

15.توفر الشبكات وسيلة إتصال ذات كفاءة عالية

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

16.   تربط الشبكات جميع المستخدمين بعدة مصادر للمعلومات في آن واحد مما يساعد في سرعة أداء الأعمال

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

17.تستخدم شبكات المعلومات الداخلية لربط وحدات الشركة مع المجتمع الخارجي

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

الجزء الثالث: التدريب: يرجى وضع إشارة (√) تحت العبارة التي تراها مناسبة.

المعيار الأول: التدريب

18.يتم تدريب العاملين على الأنظمة المعلوماتية المطبقة في الشركة

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

19.الخطط و البرامج التدريبية للشركة تخضع لتطوير مستمر وفق المستجدات التكنولوجية

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

20.تشرك الشركة جميع العاملين في دورات تدريبية لإستخدام نظم المعلومات في أعمالهم

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

21.يكسب التدريب مهارات جديدة تزيد فرصتهم في الإنسجام مع العمل

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

22.يوفر التدريب إمكانية إنجاز الأعمال بسهولة في الشركة

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

23.تؤمن الشركة بأن التدريب أفضل وسيلة لإكتساب المهارات اللازمة للافراد العاملين لديها

☐ أوافق بشدة   ☐ أوافق   ☐ محايد   ☐ لا أوافق   ☐ لا اوأفق بشدة

الجزء الرابع: أداء العاملين: يرجى وضع إشارة (√) تحت العبارة التي تراها مناسبة.

المعيار الأول: حجم العمل

24.تساعد تكنولوجيا المعلومات والاتصال في إنجاز عدد مهام أكبر

☐ لا اوأفق بشدة   ☐ لا أوافق   ☐ محايد   ☐ أوافق   ☐ أوافق بشدة

25.تساعد تكنولوجيا المعلومات والاتصال في تقليل أعباء العمل

☐ لا اوأفق بشدة   ☐ لا أوافق   ☐ محايد   ☐ أوافق   ☐ أوافق بشدة

26.تساعد تكنولوجيا المعلومات والاتصال في توفير الوقت

☐ لا اوأفق بشدة   ☐ لا أوافق   ☐ محايد   ☐ أوافق   ☐ أوافق بشدة

المعيار الثاني: الجودة

27.تساعد تكنولوجيا المعلومات والاتصال في تقليل الأخطاء

☐ لا اوأفق بشدة   ☐ لا أوافق   ☐ محايد   ☐ أوافق   ☐ أوافق بشدة

28.تساعد تكنولوجيا المعلومات والاتصال في إنجاز العمل ضمن المواصفات المطلوبة

☐ لا اوأفق بشدة   ☐ لا أوافق   ☐ محايد   ☐ أوافق   ☐ أوافق بشدة

29.تساعد تكنولوجيا المعلومات والاتصال في تحسين العمل باستمرار

☐ لا اوأفق بشدة   ☐ لا أوافق   ☐ محايد   ☐ أوافق   ☐ أوافق بشدة

المعيار الثالث: سرعة الإنجاز

30.تساعد تكنولوجيا المعلومات والاتصال في توفير الوقت

☐ أوافق بشدة ☐ أوافق ☐ محايد ☐ لا أوافق ☐ لا اوأفق بشدة

31.تساعد تكنولوجيا المعلومات والاتصال في توفير الجهد

☐ أوافق بشدة ☐ أوافق ☐ محايد ☐ لا أوافق ☐ لا اوأفق بشدة

32.تساعد تكنولوجيا المعلومات والاتصال في تحقيق مرونة أكبر في العمل

☐ أوافق بشدة ☐ أوافق ☐ محايد ☐ لا أوافق ☐ لا اوأفق بشدة

(Appendix – C)

Table (5.1) Name of Companies Participated in the Study

No.	Company Name	Logo	Established Year	Type
1.	The Arab Pharmaceutical Manufacturing Co. LTD (APM)		1962	Public
2.	Dar Al Dawa Development and Investment Co. (DAD)		1975	Public
3.	Hikma Pharmaceuticals (HIKMA)		1977	Public
4.	Jordanian Pharmaceutical Manufacturing Co. PLC (JPM)		1978	Public
5.	Arab Center for Pharmaceutical and Chemical (ACPC)		1983	Public
6.	United Pharmaceutical (UPM)		1989	Private
7.	Amman Pharmaceutical Industries Co. (API)		1989	Private
8.	Ram Pharmaceutical Industries Co. Ltd (RAM)		1992	Private
9.	Hayat Pharmaceutical Industry (HPI)		1993	Public
10.	Philadelphia Pharmaceutical Industries Co. (PHILAD)		1993	Public
11.	Middle East Pharmaceutical Manufacturing Co. (MIDPHARMA)		1993	Public
12.	Pharma International (INTER)		1994	Private
13.	Jordan Sweden Medical and Sterilization Co.		1996	Private

	(JOSWE)			
14.	Al-Kindi Pharmaceutical Industries PLC. (KP)		1997	Private
15.	Jordan River Pharmaceutical Industries Co.		1999	Private