

## Original Research Article

# The Effect of Training Quality on Work Injuries

### Abstract

The purpose of this search is to verify the relationship of training quality including support of senior administration, employee participation, continuous improvement, customer focus, training, education and continuous motivation in work injuries of three causes, which are individual reasons, technical causes and factors associated with the workplace. (Electrical Projects Implementation Department/Central Region) Researchers have used the analytical exploratory descriptive curriculum as it fits into the research topic. To achieve the research objectives, two main topics were designed: Quality training and work injuries: The research community consisting of 236 members (Electrical Projects Implementation Department/Central Region) and 35 members were selected as research samples, and descriptive statistics were used to display the research variables and analytical statistics to test the hypotheses. A set of conclusions has been reached, perhaps the most important of which is from the statistical analysis, the presence of a good level of significance, with the participants realizing that the training quality has an impact on work injuries. Questions were directed to 35 members, which constituted about 15% of the total members, 56 of which were retrieved, and the collected data were analyzed using the SPSS statistical program.

**Keywords:** Quality, Training, Work Injuries.

### Introduction

Work injuries are one of the most important problems which suffer of the vast majority in industrial organizations including the systems of electricity energy consisting of three stages in work (Production, Transportation & Distribution), the three stages require workers with high skills to remove the injuries in different reasons that presented in the Abstract caused to the cadres in different positions and levels as (Engineers, Technicians & Administrators), to the disengagement or retirement of some, specially, the staff with special skills with competence and experience. Consequently, the difficulty of compensation on the one hand high costs of their treatment or compensation them, as a result reducing the production power and its effect to the national production of the electricity energy, as it is one of the basic products in the society life and rising the costs, these problems are almost daily due the nature of organization work under consideration.

Thus, foregoing made the organizations approve in this problem, therefore, to search in different systems and tools to reduce the work injuries. Undoubtedly, the training in various elements which were reviewed in the research abstract, is one of the organizations workers served its presenting of production in quantities meet market needs represented by consumers of electricity energy, whether by individuals or rest of the organizations of society sectors through training impact in raising the workers efficiency in this field.

Consequently, reducing the work injuries in the one hand, raising production levels and reducing costs on the other hand, specially, as organizations pass through what is known as production quality (goods/service), in the fact quality has become one of the requirement and characteristics of successful organizations, in this way the research title was chosen that combines (training quality, use and recruit the requirements to perform it with high skill and work to obtain an international certificate (ISO) is one of the requirements of which is the training quality in such organizations, in line with modern technology such as; systems or machines used in the organization work, as well as raw materials, spare parts and so on. In particular, is one of the reasons of work injuries is the low level of training, which, as we mentioned, affects the workers efficiency. Hence, a hypothetical research model was formulated that represents the impact relation between the two research variables, namely; the independent variable (training quality) and the mobile dependent variable (work injuries) in view what the two researchers reached through the statistical analysis of the descriptive questionnaire method adopted by the researchers, the conclusions will be excluded, and through which the recommendations are determined for the purpose of addressing the negative results shown by the analysis.

### (( Research Methodology ))

#### First : Research Problem :

Over the past two decades, training quality management has achieved striking successes in many Japanese, American and European organizations together, While important to these countries and their achievements in various fields of industry and service alike, we did not find a distinct place for it in Iraqi organizations, as many organizations are interested in ISO and obtaining its certificate without concern for the training quality management from which the philosophy of the ISO International Standard was derived, which prompted researchers to address this important topic through its study and its relationship to work injuries as an effective means to ensure the continuity of the department. A number of research gaps were identified, the most important of which were the following:

- 1- The absence of a previous study on the combined dimensions of research.
- 2- This study is the first in Iraq carried out in an industrial environment according to researchers' knowledge.

In line with the above, the problem of research arises through the following questions: -

- 1- Is there interest by the Electrical Projects Implementation Department / Central Region in managing the quality of training in the company.

- 2- What is the level of impact of quality training on the mitigation of work injuries.
- 3- What criteria are used by the Training Quality Department used at the department level.

Second : The objective of the research: -

The research aims to address the reality of training quality management in the Electrical Projects Implementation Department / Central Region, and the availability of requirements for proper and efficient application. It then identifies the risks faced by the Department as a result of the pressures of increasing waste of its various types and addresses the relationship between them by studying and analyzing by using the effect towards the establishment of scientific rules and foundations for the proper application of training quality management requirements in the department under discussion, in order to face the risks it faces as a result of the increase in waste areas due to the increasing environmental changes.

Third : Research outline and hypotheses: -

The systematic treatment of the research problem in the light of its theoretical framework and field contents requires the design of the research model, expressed as follows :

Figure 1 : Hypothetical Search Chart

The foregoing can be expressed in the following default format:

#### Fourth : Hypothetical Search .

##### Research hypothesis

The absence of a statistically significant impact of training quality requirements on work injuries, the following sub-hypotheses have been derived from them:

- 1- No effect of senior management support in work injuries.
- 2- No effect on workers' participation of organization in work injuries.
- 3- No effect on continuous improvement in work injuries.
  
- 4- No effect of focusing on the customer in work injuries.
- 5- No effect of training and education on work injuries.
- 6 - No effect of continuous stimulus in work injuries.

#### **Fifth: Variables & Procedural Definitions:**

Through the researchers' knowledge of the basics of training quality and work injuries, the search terms can be defined procedurally as follows: Quality of training: It is represented by the explanatory constant (independent) variable of the research represented by its dimensions (support of senior management, participation of employees in the organization, continuous improvement, focus on the customer, training And education, continuous motivation) and the quality of training is not only aimed at reducing or reducing costs or working within a specific budget as many people think, but its main goal is to reduce work injuries because of its positive repercussions in ensuring the preservation of the organization's employees at all levels and thus ensuring the continuation of work without

Interruptions affect its operation. Work injuries: It represents the dependent variable represented by its dimensions (individual causes, individual causes and factors, causes related to the workplace) and work injuries are considered a variable dependent on the quality of training and therefore attention to the quality of training contributes to the result in reducing work injuries, which represents one of the research hypotheses. In light of its evidence and also through the statistician, the researchers recommended the necessity of paying attention to the quality of training and considering it an investment and not unjustified spending or extravagance of the organization's funds.

### **Sixth: The importance of research:**

The research acquires its importance from the importance of the selected variables and the researched field, as the research shares through putting forward theoretical ideas and conducting statistical tests for the research variables represented by the requirements of quality training and work injuries, and the academic (cognitive) and field importance of the research is evident in the following paragraphs:

- 1- The importance of the research is embodied as it focuses on supporting senior management as a factor in ensuring the continuity of the organization's work in industrial/economic activity and thus serving the community.
- 2 - The importance of research lies in finding good solutions and methods from the point of view of researchers and affiliates in order to reduce the number of work injuries of all kinds and thus ensure the continuation and improvement of its work in terms of quality and quantity, thus contributing to raising the level of productivity and reducing costs.
- 3- The research is important because it will provide a database for the organization in the field of research in particular and other similar organizations in general, which can be employed in the service of the future vision of the organization in question.
- 4- One of the indicators of the importance of the research is the emphasis on and control over the elements (training quality, time and cost).
- 5- The importance of providing quality training requirements and techniques, which is gaining great interest in administrative and organizational thought.
- 6- Theoretical background, which was included in the research on the concepts of quality of training and work injuries and the relationship and impact between them as an accumulation of knowledge richness in the field of administrative literature and production.

### **Seventh: The limits of research**

The limits of the study were as follows:

**A-** Objective limits: where the research deals with the dimensions of training quality as an independent variable in work injuries as a dependent variable.

**B-** Spatial limits: This research will be conducted in the Electrical Projects Execution Department / Central Region / Baghdad.

**C-** Human limits: The research included a random sample of the employees of the above department.

### **Eighth: Research Methodology**

Based on the nature of the research and the information required to get to know the opinions and responses of the research sample members of the department's employees, the researchers adopted the descriptive research method, which is expressed qualitatively and quantitatively to present it in a scientific manner in presenting the data as a modern method to a certain unit

### **Ninth: Methods of data collection:**

The researchers will rely on data collection sources for research from two main sources, namely:

**A-** Primary sources: They are the sources that the researchers will rely on with direct data, by designing a questionnaire form for the survey of the opinions of the research sample,

**B-** which was prepared based on a number of previous studies and the writings and books of a number of researchers.

**C-** Questionnaire form: A questionnaire will be prepared, which is the main tool for surveying the opinions of the research sample, which was prepared based on previous studies and review of a group of literature related to the design of the questionnaires.

### **Tenth: Society and research sample**

Based on the objectives of the research, the target research community was determined, all the employees of the researched department (Department of Implementation of Electrical Projects / Central Region / Baghdad of the Iraqi Ministry of Electricity, where the employees of the department, regardless of their positions, grades and job titles, reach 236 members. This section was chosen because it is one of the active departments in the dam The needs of an important and vital area of Baghdad with electric power, and the researchers will depend on choosing a simple random sample of 35 affiliates, which constitutes a percentage of about 15% of the affiliates, which is an acceptable percentage within the Likert statistical scale.

## **Eleven: Statistical methods used:**

For the purpose of analyzing the results of this research and testing the hypotheses and the scale tool, a set of the following descriptive and inferential statistical methods were used:

**1-** To ensure the validity and reliability of the questionnaire scale, the Alpha Cronbach coefficient will be used to determine the reliability of the questionnaire for the collected data. According to this scale, the data is considered reliable if the value of alpha is greater than (60%).

**2-** Frequencies and percentages will be used to describe the research sample.

**2-** The weighted arithmetic mean and standard deviation are also used to identify the reality of the variables (independent and dependent) and the extent to which the answers of the sample members focus on the search terms, and to know the extent to which the answers are dispersed from their arithmetic mean.

### Theoretical aspect

#### First: Training Quality

##### 1. Concept

The training process is the basis of the organization's human resources development. Therefore, researchers are interested in this aspect at various levels of administration. Human resources in an organization that is the vital component of the productive process and in its light determines the rest of the production process. The quality and volume of human resources also explain the reasons for different growth rates between different organizations and the most important training concepts. The basis in the training process is the delivery of information and the formation of certain skills to a group of trainees by means of a means of communication and a certain method of training with the aim of changing their behavior and raising their functional capabilities. The training also aims, in turn, for the individual to acquire the skill, knowledge and behavior directly related to his/her job role, which raises

his / her level of productivity at work. (El-Kassar et al., 2022: 4) [1] Therefore, researchers and writers dealt with the definition of training from different angles, but they all agreed in its role in raising the efficiency of the performance of workers and the organization. Training was defined as a behavioral process intended to change the individual with the aim of developing and raising his/her productive efficiency.

It was defined as a systematic process aimed at acquiring skills, procedures, concepts and trends according to workers' characteristics and job requirements. (Kelz et al., 2013: 1128 ) [2].

(Islam et al., 2015: 188) [3] sees it as the planned efforts by organizations aimed at increasing the competencies of individuals working for them in proportion to the jobs they work in.

It was also defined as an attempt to improve employees' performance in the current or associated functions, which usually means changes in specific knowledge, skills, attitudes or behaviours . (Martires, 2016 : 270) [4].

It is also defined as a continuous learning process aimed at providing workers with skills, concepts, procedures or trends , with a view to improving workers' performance. (Colakoglu et al, 2021: 101) [5]

The researchers define training as the planned activity that aims to bring about positive change in the trainees through learning with the aim of refining their skills, developing their capabilities, expanding their knowledge, and improving their behaviors and attitudes, making them able to perform their work efficiently and effectively.

The importance of training: in the opinion of some authors, the importance of training can be summarized as follows:

- Better functional achievement and quality. That is, increased productivity and thus reduced costs.
- Increasing the opportunity to satisfy the beneficiary or consumer of the organization's products by improving the services and goods provided to him. (Shen & Tang, 2018: 711) [6]
- Helping to use modern technology to accomplish many tasks at a lower cost and time. Training prepares individuals to use modern machines and equipment and thus obtain the largest number of them.
- Completion of universities and schools. If education is considered the basis from which an individual can start to work, training comes to complement what education has built.
- Community development. The training extends to the development of individuals' and groups' information and skills in communication, cooperation and interdependent human relationships. (Dhar , 2015: 422) [7] .

### 3. Types of training

There are those who classified the types of training according to the place and number of trainees and according to the following training material (Hassouna : 2011, 140) [ 8 ] .

- Training by number of trainees: a - individual training b - group training
- Training according to where the training takes place: A. Training at the workplace. B. Training outside the workplace..
- Training according to the organization's recruitment history: a. Training of new employees, b. Training of old workers.
- Training according to the category of trained workers: A- Industrial training. B- Administrative training.
- Training according to the training subject or according to the skills to be acquired for the trainee: A- Language training. B- Specialized training. C - Training in decision-making.

Hassouna There is a kind of training that is called in-service training and this type of training is based on an old idea - the idea of apprenticeships - which essentially means that the new employee receives instructions and directions that show him the way of working from his boss who takes care of him during the first period, so he shows him right from wrong. rights and duties , the best method for performing work and

professional ethics ( Hassouna : 2011 , 142 ) [ 9 ] .

Either ( Harris, 2000 , 349 ) [10] , (Daft , 2001, 410) [ 11 ] , ( Dessler , 2003, 205 ) [12] . They agreed to divide the types of training into two groups:

- Training during the work.

Organizations benefit from this training to train new workers to develop their skills and abilities when new technology is introduced and it is on the job site and under the supervision and supervision of managers or supervisors.

- Training outside the workplace.

Some organizations may resort to this method of training, that is, sending their staff to train in places far from their current work when some work requires high levels of skill and competence that cannot be provided by their advanced staff either because of time constraints or because of the lack of an efficient training staff within the organization.

Second: Work accidents and injuries

- The concept.

Protecting the human element from the risks of work means protecting the national economy and society. If we read statistical data available on work accidents and the resulting cases of death, total or partial disability, or other negative effects on various human, social and economic levels, the importance that the topic should occupy seems quite clear in a purely humanitarian point of view, work accidents reflect a mixture of fear and turmoil in the minds of workers and leads to physical and psychological damage of varying severity according to the fractures, wounds, paralysis, psychological anxiety, back pain, deformities, and disabilities.

It may also end in death or total disability, as well as many social and economic effects that are reflected on the entire community. Work is often considered a source of many and multiple risks that may affect the worker's health and safety, and in some cases may cause his death. Accidents and work injuries have become frequent, and the interest in dealing with this phenomenon is increasing day after day due to the dangerous effects that it leaves, and the negative consequences it has, either at the level of the individual or the organization as an organizational, productive and social framework to which this individual worker belongs ( Zahia , 70 : 2017 ) [ 13 ] .

Most people confuse accidents with injuries. Not all accidents lead to injuries. There is a clear difference between the two terms, accident is the event and the injury is a result or final result of the event, and the end result has multiple consequences such as damage to property or equipment, and disruption in the process.

( Pelissier , 2016 : 320) [ 14 ] . The criterion for distinguishing between a work accident and a work injury is the extent to which the injury has been achieved or not, if the accident results in an individual or group of individuals being injured, it is called an injury, and there are those who believe that the accident should be associated with an individual's injury in order to be called a work accident, given that it is not enough for the harmful act to occur because of the work to be described as a work accident, but rather that this act must result in damages to The human body in order to acquire this description. ( van . Roden . et . al , 2021:159 [15] ) .

Occupational accidents differ from the rest of the accidents because the first is within the context of working life, and the main consequences are limited to work injuries to which workers are exposed.... etc.

They are in different levels of the body, such as the head, the hands, and the feet... etc. .It also causes pain and disability and can affect the worker's life, whether inside or outside the work. It represents a heavy economic burden on employers, employees, and society as a whole).

Work accidents are defined as any sudden or unexpected emergency that occurs during work or because of what is related to it. It also includes any excessive exposure to physical, chemical or biological factors or acute stress that leads to death, physical injury or acute illness of the injured worker. Lilley , . et . al , 2002 : 189 [16] or it is an unplanned and uncontrolled event that may lead to personal injury or property damage, , for example, if Someone slipped and fell. It may or may not happen, resulting in an injury. But the accident happened and may be inevitable from accidents and

injuries at work in all organizations because they are events that arise from the workflow that results in a non-fatal or fatal injury. ( McKinnon , 2013: p25) [ 17 ]

It is defined by Jorgensen , 2015 : P 2 [ 18 ] as an undesirable event that often occurs due to unsafe actions or unsafe conditions that lead to physical harm to persons, property damage, or interruption of work. While injury is one of many possible outcomes of an accident, the most prominent outcome, is used as a measure of safety effort and failure Safety or success of safety.

Work injury is defined as the harm caused to employees as a result of the accident, it includes work injuries, various harmful situations that cause harm to employees. Such as road accident injuries as a result of going or returning from work, and injuries that occur during the performance of tasks. Occupational diseases are also considered as work injuries. It is often seen that the workplace injury rate is linked to the work life cycle. A decrease in the number of work injuries is observed during periods of recession.

## 2. Causes of work accidents:

A - Causes related to the working individual:

It is the sum total of the characteristics and traits associated with the working individual himself. These characteristics and traits can be a major cause of occupational accidents, and among these characteristics, we mention\*Improper attitude and direction, which includes: \* Deliberate neglect and indifference when performing work \* Lack of loyalty and dedication to work. \* Irritability in critical situations. \* Aversion and fear of doing work.

- Lack of knowledge and skill, which results from: \* Not informing the worker of information related to the work assigned to him.

\* Misunderstanding commands and instructions \* inexperience or lack thereof.

B- Technical reasons and factors: These are the reasons resulting from the failure to follow the rational policies in the selection of the project site and its design. And the lack of proper selection of devices and equipment, etc. Below these reasons:

- Not choosing the appropriate location for establishing the institution, whether in terms of location or appropriate space.

- Poor internal division of the institution's spaces, which leads to people bumping into equipment.

- Failure to follow the engineering specifications in the establishment and construction, and the heights and lengths of the institution.

- Failure to follow proper lighting, ventilation and humidity systems appropriate to the nature of work.

(Iftikhar , 2015 : 29) [ 19 ] .

C - Reasons related to the workplace, including Al-Mousawi, Ali Saad Alwan and Al-Saegh , Nagham Ali Jassim, (2020) [ 20 ] Physical causes : These include any deficiency or failure in creating the physical

working conditions, such as temperature, ventilation, humidity, noise, cleanliness, arrangement of location.

Mechanical reasons: These reasons result from the misuse of machines and equipment. In addition to this, we find:

Organizational reasons : Organizing is not a goal in itself, rather it is a tool to achieve organizational goals, and every organization that does not seek to achieve the goals of employees will inevitably fail,

and often the organizational structure is a major reason for increasing the state of tension and conflict, and the resulting accidents and injuries that sometimes amount to death.

3. The organizational reasons that lead to work accidents, including:

- \* Disruption of the organizational structure and lack of clarity of organizational relations.

- \* Neglect and indifference in the selection and appointment process.

- \* Focusing on senior organizational positions and neglecting supervisors, observers and workers at the middle management level.

- \* Lack of job security, especially in light of the temporary employment policies .

- There are those who believe that there are three main reasons for the occurrence of occupational accidents

1. Unsafe working conditions, which are:

- \* Failure to put warning signs and the presence of workers in .dangerous places.
- \* Failure to observe cleanliness and order.
- \* Inadequate physical conditions and dangerous storage
- \* Bad design and lack of protective equipment.

2. Unsafe behavior of workers, which are:

- \* Lifting materials unsafely and maintaining machines while they are working.
- \* Inappropriate use of personal protective equipment.
- \* Use of machinery and equipment without barriers.

3. Personal reasons are divided into: ( Raougui . et . al , 2012 : 13) [21 ].

- \* Defects in the senses and shortcomings, such as poor eyesight, hearing impairment
- \* Psychological state Stress and agitation.
- \* Professional reasons: experience, skill and nature of the job.

4. Effects of work accidents:

A- Work stoppage due to accident or injury, B- Increase in lost work hours as a result of that. C- The bad psychological impact of these accidents and the feeling of insecurity among workers, D- Production affected by accidents. E - The organization bears the costs of compensation for work-related accidents and injuries .

### Statistical Analysis of Data

#### 1- Descriptive data analysis:

- Graphs:

A- Distribution of sample data by human type : the results of the questionnaire showed a lower percentage of females than males , as shown in table ( 1 ) below :

Table 1 : Distribution of sample data by human type

Human type	Female	Male	T0tal
No.	16	19	35
Percent	46%	54%	100%

B- Distribution of sample data by age group: The results of the questionnaire showed that the majority of those covered were 26 to 35 years of age, followed by 36-45, 46-55 years and at last under 25 years of age, as shown in table 2 below:

Table 2 : Distribution of sample data by age group

Age group	Less than 25 years old	26-35	36-45	46-55	Total
No.	1	14	11	9	35
Percent	3%	40%	31%	25%	100%

C- Distribution of sample data according to academic achievement: The results of the questionnaire showed that most of the respondents had a bachelor's degree, followed by a diploma, and finally middle school, as shown in table 3 below:

Table 3 Distribution of sample data according to academic achievement

Academic achievement	High school diploma and below	Diploma	Bachelor	Higher Diploma	Master	PhD.	Total
Repetition	3	6	26	0	0	0	35
Percent	9%	17%	74%	0%	0%	0%	100%

D. Distribution of sample data by functional specialization: The results of the questionnaire showed that the majority of those covered were department managers followed by a supervisor, engineers , and finally unit officials and regular staff , as shown in table 4 below :

Table 4 Distribution of sample data by functional specialization

Position	Department Manager	Division Officer	Unit Officer	Chief Engineers	Chief Observer	Engineer	Technician	Observer	Regular Employee	Total
No.	13	0	2	0	7	6	1	4	2	35
Percent	37%	0%	6%	0%	20%	17%	3%	11%	6%	100%

E. Distribution of sample data by functional grade : The results of the questionnaire showed that most of those covered were in Grade VII followed by Grade III , IV, and Grade II and VIII , as shown in Table No. (5) below :

Table No. (5) Distribution of sample data by functional grade

job class	1	2	3	4	5	6	7	8	9	10	Total
Repetition	0	2	7	7	3	4	10	2	0	0	35
Percent	0%	6%	20%	20%	9%	11%	29%	6%	0%	0%	100%

F- Distribution of sample data by courses: the results of the questionnaire showed that most of those covered had received computer courses and general courses followed by courses in quality and training, followed by courses in work injuries and recent courses in production and operations, as shown in table ( 6) below :

Table ( 6) Distribution of sample data by courses

Courses	Training	Quality Management	Production & Operations Management	Work Injuries	Computer	General Courses	Total
Repetition	14	14	7	11	24	24	94
Percent	15%	15%	7%	12%	26%	26%	100%

- Conducting the reliability and validity test for the questionnaire questions used in all the data:

Stability means the scale's stability and non-contradiction with itself, meaning that the scale gives the same results with a probability equal to the value of the coefficient if it is re-applied to the same sample. (Cronbach's Alpha) or (Split-Half) , the stability coefficient takes values ranging from zero to one , if there is no stability in the data, the value of the parameter will be zero , and on the contrary, if there is complete stability in the data, the value of the parameter will be equal to the correct one.

Truthfulness is meant to measure what is put in place for a vertical, and the Validity coefficient can be calculated by calculating the root of the coefficient.

The following table shows that the value of the Cronbach's Alpha coefficient is 0.966, which is very high, i.e. the scale gives the same results at a probability of 0.966 if it is reapplied to

the same sample and to all questions. There is also a confidence of 0.982 that the scale measures what it is designed to measure.

<b>Reliability Statistics</b>
<b>Cronbach's Alpha</b>
<b>0,996</b>

- Calculate the weighted average to see the direction and agreement of respondents' opinions for each question on the form :

This analysis includes the calculation of the weighted computational medium and standard deviation of each question for the purpose of knowing the direction of the answer. Because the answers are one of three options, they were given digital coding as shown in Table No.( 7) below:

Table No.( 7) weighted average to see the direction and agreement of respondents'

Opinion	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
Code	5	4	3	2	1

The weighted computational medium is then calculated and the trend is found by weighted average values as shown in Table No. (8) below:

Table No. (8) computational medium

Opinion	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
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Weighted average	from 4.2 - 5	3.4 - 4.19	2.6 - 3.39	1.8 - 2.59	1- 1.79
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Note that the length of the period used here is  $(4/5)$  or about 0.8. The length of the period was calculated on the basis that the five numbers (1,2,3,4,5) were confined between them to four distances. Also knowing to agree on those views by the fact that the values of standard deviation are greater than one quarter (no agreement) or less than one quarter (no agreement).

Note that x1 represents the phrase (support for senior management), which in turn was divided into three phrases, x2 represented the phrase (the participation of employees in the organization), which in turn was divided into three phrases, and X3 represented the phrase (continuous improvement), which in turn was divided into three phrases, and X4 represented the phrase (focus on The customer), which in turn was divided into three phrases, X5 presented the phrase (training and education), which in turn was divided into three phrases,

and X6 represented the phrase (continuous motivation), which in turn was divided into three phrases, which represented the components of the independent variable (training quality requirements) as in the default model of the research note. That y1 represents the phrase (individual causes of work-related injuries), which in turn is subdivided into five phrases, and y2 represents the phrase (causes and technical factors for work-related injuries), which in turn is subdivided into five phrases, and y3 represents the phrase (workplace-related causes of work-related injuries), which in turn is subdivided into five phrases which The components of the dependent variable (work injuries) were represented as in the default model and the following table (9) illustrates all of that :

table (9) Computational Medium and Standard deviation

Paragraphs or axes	Computational Medium	Standard deviation	Clouse answer direction	Agreement on the answer
x11	3.97	0.75	Agree	Agreement
x12	4.00	0.87	Strongly agree	Agreement
x13	3.97	0.98	Agree	Agreement
X1	3.98	0.75	Strongly agree	Agreement
x21	4.06	0.87	Agree	Agreement
x22	3.66	1.11	Agree	No Agreement
x23	3.71	0.96	Agree	Agreement
X2	3.81	0.86	Agree	Agreement
x31	3.77	0.88	Agree	Agreement
x32	4.00	1.16	Strongly agree	No Agreement
x33	3.77	0.97	Agree	Agreement
X3	3.85	0.87	Agree	Agreement
x41	3.89	0.87	Strongly agree	Agreement
x42	3.77	1.11	Agree	No Agreement
x43	4.03	0.79	Agree	Agreement
X4	3.90	0.85	Strongly Agree	Agreement
x51	3.83	1.15	Agree	No Agreement
x52	3.69	0.96	Agree	Agreement
x53	3.91	1.07	Strongly Agree	No Agreement
X5	3.81	0.89	Agree	Agreement
x61	3.43	1.07	Agree	No Agreement
x62	3.51	1.07	Agree	No Agreement

x63	3.31	1.08	Agree	No Agreement
X6	3.42	1.01	Agree	No Agreement
X	3.79	0.78	Agree	No Agreement
y11	2.97	1.27	Neutral	Agreement
y12	3.49	1.09	Agree	Agreement
y13	4.03	0.82	Strongly Agree	Agreement
y14	3.86	0.73	Agree	Agreement
y15	3.94	0.87	Agree	Agreement
Y1	3.66	0.67	Agree	Agreement
y21	4.20	0.72	Strongly Agree	Agreement
y22	3.69	0.93	Agree	Agreement
y23	4.03	0.95	Strongly Agree	Agreement
y24	3.86	0.55	Agree	Agreement
y25	3.26	1.17	Agree	No Agreement
Y2	3.81	0.53	Agree	Agreement
y31	3.60	1.09	Agree	No Agreement
y32	3.46	1.15	Agree	No Agreement
y33	3.89	0.93	Agree	Agreement
y34	4.17	0.86	Strongly Agree	Agreement
Y3	3.78	0.81	Agree	Agreement
Y	3.75	0.55	Agree	Agreement

For the preceding interlocutors, we generally note the concentration of views in the majority of responses "agree", and the values of normative deviation were less than one-quarter, indicating that there was agreement on those views and no dispersion of views.

### 3- Correlation Analysis:

examines the correlation between all the research variables and attempts to find out the relationship between the variables and to know which variables are the strongest, which are the least related and whether the relationship is moral or not, and this is done by calculating the simple hazardous correlation coefficient. (Linear Correlation Coefficient) among variables, since the value of the coefficient varies between and the positive value refers to the direct relationship between the two variables "that is, one variable increases by increasing the other variable and vice versa" and the negative value to the reverse relationship is "that is, one variable increases the other variable and vice versa". The closer the linear coefficient is to one, this indicates the strength Relationship The sign (\*) or (\*\*) indicates the presence of confidence and statistical significance of 95% and 99% in the indicator, respectively, and from analyzing the relationship between the study variables using the Pearson Correlation Coefficient and according to the proven hypotheses.

By analyzing the link as shown in Table ( 10) , the following are shown:

Table ( 10) Correlation Coefficient

Correlation Coefficient				
Work injuries	Workplace-related causes	Technical factors	Individual causes	Explanatory variables
0.632*	0.729*	0.891*	0.742*	Senior Management Support
0.8765*	0.395*	0.543*	0.673*	Participation of all employees in the company
0.284*	0.298*	0.875*	0.985*	Continuous Improvement
0.643*	0.739*	0.730*	0.346*	Customer Focus
0.482*	0.328*	0.889*	0.569*	Training and Education
0.832*	0.286*	0.349*	0.532*	Continuous stimulus
0.843*	0.987*	0.563*	0.567*	Training Quality Requirements
**. 0.01 significant correlation at the level of significance				
*. 0.05 significant correlation at the level of significance				

1- There is a positive, medium-strength, and morally significant relationship with 95% confidence between senior management support and work injuries, that is, we reject the null hypothesis “there is no moral relationship between senior management support and work injuries” and accept the alternative hypothesis “there is a moral relationship

between Support of senior management and work injuries" where the simple linear correlation coefficient reached 0.632 \*.

2 - There is a strong and significant positive correlation with a confidence of 95% between senior management support and work injuries, that is, we reject the null hypothesis “there is no moral relationship between the participation of all employees in the company and work injuries” and we accept the alternative hypothesis “the existence of a relationship Significant correlation between the participation of all employees in the company and work injuries,” where the simple linear correlation coefficient was 0.8765 \*.

3- There is a weak direct relationship and a significant significance with 95% confidence, between continuous improvement and work injuries, that is, we reject the null hypothesis “there is no significant relationship between continuous improvement and work injuries” and accept the alternative hypothesis “there is a significant relationship between continuous improvement and work injuries” The simple linear correlation coefficient was 0.284 \*.

4- There is a positive, medium-strength, and morally significant relationship with 95% confidence between customer focus and work injuries, that is, we reject the null hypothesis “there is no significant relationship between customer focus and work injuries” and accept the alternative hypothesis “there is a significant relationship between Focusing on the customer and work injuries.” The simple linear correlation coefficient was 0.643\*.

5- There is a weak positive direct relationship with a moral significance with 95% confidence between training and education and work injuries, that is, we reject the null hypothesis “there is no moral relationship between training, education and work injuries” and we accept the alternative hypothesis “there is a moral relationship between training and education and work injuries” where the simple linear correlation coefficient was 0.482 \*.

6- There is a strong positive direct relationship with a moral significance with 95% confidence between continuous motivation and work injuries, that is, we reject the null hypothesis “there is no significant relationship between continuous motivation and work injuries” and we accept the alternative hypothesis “there is a significant relationship between continuous motivation and work injuries” Work” where the simple linear correlation coefficient was 0.832 \*.

7- There is a strong positive direct relationship with a moral significance with a confidence of 95% between the requirements of training quality and work injuries, that is, we reject the null hypothesis “there is no significant relationship between the requirements of training quality and work injuries” and we accept the alternative hypothesis “the existence of a moral relationship between the requirements of training and work injuries.” The training quality and work injuries” where the simple linear correlation coefficient was 0.843\*.

- Regression Analysis:

This analysis aims to find out the impact and morality of the illustrative variable on the approved variable or affiliate, and includes the following indicators :

1- Coefficient of clarification or interpretation: It represents the percentage of the explanatory variable's interpretation of the changes taking place in the dependent variable, and the remaining percentage is due to other factors that the researcher did not take into consideration.

2- The associated probability of the calculated F value (p-value of F): The test uses the significance of the independent variables in total on the dependent variable, and if its value

is less than 0.05, we reject the null hypothesis (no significant effect) and accept the alternative hypothesis (there is a significant effect of the explanatory variable on the dependent variable) and vice versa.

3- The probability associated with the calculated (p-value of t): The moral test uses the illustrative variables individually on the approved variable. If the value is less than 0.05, we reject the hypothesis of nowhere (no moral effect) and accept the alternative hypothesis (moral effect of the demonstrative variable on the approved variable) and vice versa.

Through the analysis , it was found that :

A - The explanatory variables of training quality requirements contribute to 69% of the changes in the variable dependent on work injuries, while the other variables contribute by 31%.

B - The calculated F value was (4.47) which is greater than the tabulated F value of (3.05), and thus we accept the alternative hypothesis which states that there is a significant effect of the explanatory variable jointly on the dependent variable.

C - The value of the marginal tendencies of the explanatory variables reached (1.98,1.876,0.438,2.876,2.832,0.652), which indicates that the more interest in the dimensions of training quality increases by one unit, the greater the interest in the dependent variable work injuries in the same proportions and vice versa.

D - The calculated t value of all explanatory variables was significant except for the last variable, so the final predictive model will be in the following form :

The results are shown in table ( 11) below :  
table ( 11) data statistics

Result	Tabulated t-test value	Calculated t-test value	Marginal inclination b	Constant term a	Result	Tabulated F-test value	Calculated F-test value	Explanation factor R2	Independent variable	dependent variable
Significant	2.13	2.686	1.98	1,054	significant	3,05	4,47	69%	Senior Management Support	Work injuries
Significant	1.095	2.987	1.876						Participation of all employees in the company	
Significant	2.054	2.985	0.438						Continuous Improvement	
Significant	1.785	2.564	2.876						Customer Focus	
Significant	2.156	2.424	2.832						Training and Education	
Insignificant	2.045	1.986	0.652						Continuous stimulus	

## Conclusions & Recommendations

### First: Conclusions

By reading the statistical analysis as in the tables of chapter III, the researchers reached the following conclusions:

- Researchers from demographic tables (A, B, C, D, E, F) are shown as follows:

Table A. On Human Species where it was found that the proportion of male questionnaires under analysis was 54% male and 46% female

Table B. For age groups where the results of the analysis show 40% for workers according to the questionnaires distributed from 26 - 35 years, followed by 31% for the age groups from 36 - 45 years

Table C. Concerning the level of education, as revealed by the statistical analysis, 74% of the holders of a bachelor's degree, according to the questionnaires distributed, and the absence of holders of master's and doctoral degrees.

Table D. for the job title, as the statistical analysis showed it 37% at the rank of department manager and 20% for the rank of chief observer as well, while the percentage of chief engineers is 0%, followed by an engineer's rank, where the ratio reached 17%

Table E . Job grade table, where the job grade percentage is 7, at a rate of 29%, followed by the fourth and third grade.

Table F. table of courses, where the percentage of public courses reached 26%, as well as computer courses, while the percentage of training courses reached 15% and work injuries 12%.

2 - The result of the Alpha Crow-Nbach coefficient for the reliability and validity of the resolution showed that the Cru-Nbach value is 0.966%, which is very high and higher than the standard criterion. This indicates a strong impact relationship between the quality of training and work injuries.

3 - It turns out that the calculated F value for the constant variable on the independent is 4.47, which is higher than the tabular value 3.05.

4 - It was found that the continuous stimulation in work injuries was not moral.

**Second: Recommendations from the paragraphs of the above conclusions, the researchers recommend the following:**

A - It was noticed from the tables of statistical analysis that the human gender table indicates a harmony between the ratio of males and females, as it reached 554 and 46%, and this is a good indicator.

B- Table B indicates that the ages of the affiliates are considered productive ages, as they ranged between 26-45 years, and their total percentage reached 71%.

C- Table C indicates that the majority of the education level in the Electrical Projects Implementation Department / Central Region are Bachelor's holders, 74%, and there is no role for Master's and Ph.D. holders, therefore, the researcher recommends the necessity of adopting higher degrees, especially in the field of engineering, for the purpose of developing the department, as it is one of the organizations that directly affect community service.

D- Table D for the analysis of job titles indicates that the department manager topped the list with a rate of 37%, followed by a chief of observers, with a rate of 20%. While the percentage of chief engineers is 0% and the degree of engineer is 17%, the researchers recommend the need to focus on the degree of chief engineers because of its importance in such organizations.

E- The table E of job grades, whose scale consists of 10 degrees, where the highest was grade 7, which reached to 29%, and this indicates that there is harmony between the length of service and the job grade.

F- The table refers to the functional courses, which were concentrated in public courses, as their percentage reached to 26%, as well as computer courses, while training courses accounted for 15%

and work injuries reached to 12% . Accordingly, researchers believe that it is necessary to focus on quality training courses and work injuries, as their percentages were low.

G- It is noted from Paragraph 4 in the above conclusions that the continuous stimulus clause was an insignificant relationship in work injuries and therefore researchers suggest paying attention to it for the purpose of making it a moral relationship.

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