

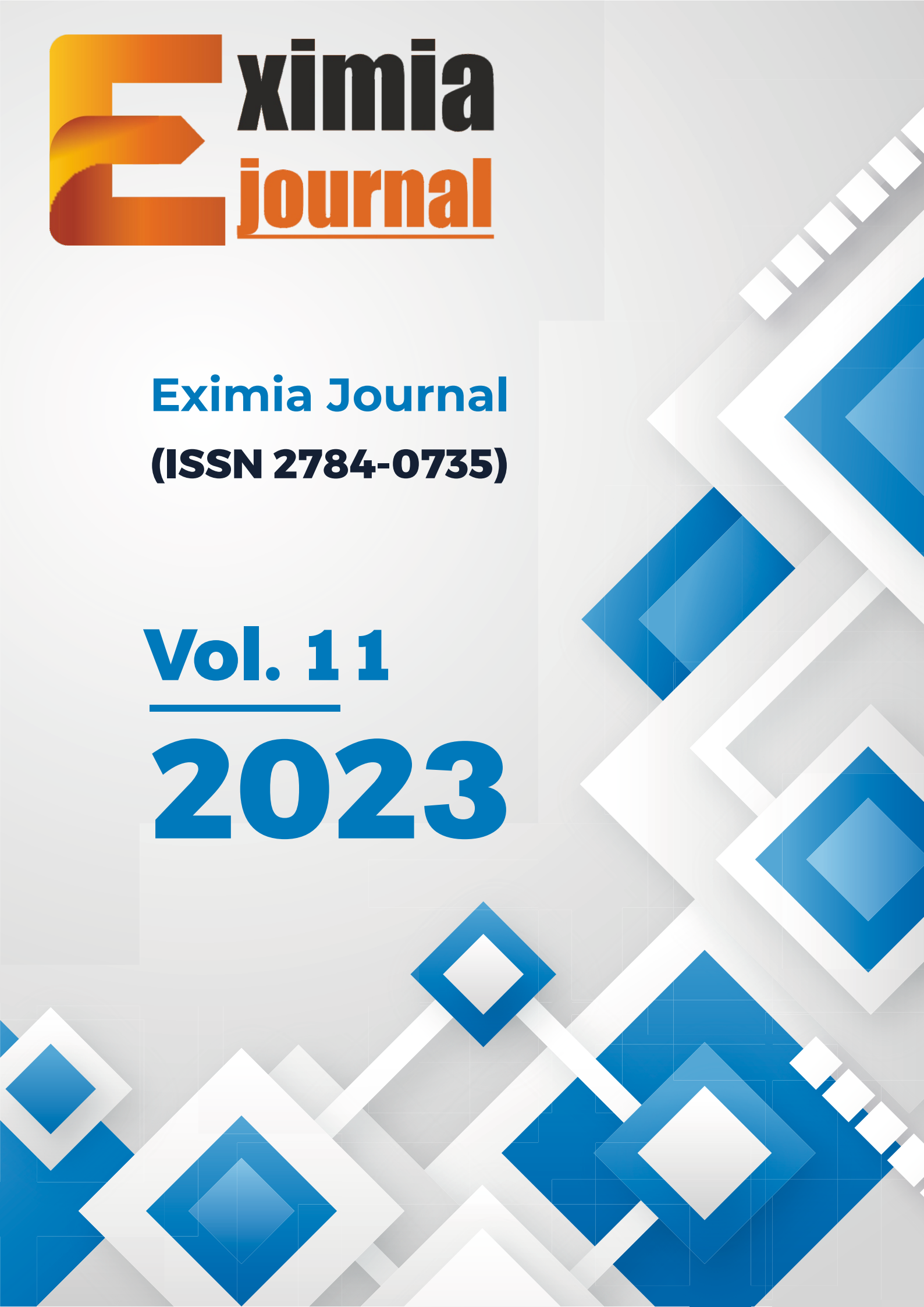


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# **Human factors engineering and its role in achieving high performance systems in light of sustainability, an analytical study**

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**Abstract.** This research came in order to identify the extent of the impact of the role of human factors engineering in achieving high performance systems in light of sustainability, and the problem can be summarized as the role of human resources engineering in achieving high performance systems and sustainability. It came in the literature of human factors engineering, high performance systems and sustainability, and an attempt to know the relationship between them, and to identify the engineering of specific human factors that can be controlled to a large extent in the engineering design process that supports administrative work that aims to improve good performance through the application of the principles of designing the operations system. The research led to a set of conclusions and recommendations, the most important of which is the need to pay attention to the qualitative variables used by researchers and practitioners.

**Keywords.** Human factors engineering, high performance systems, artificial intelligence techniques, sustainability

## **1: Research methodology**

### **1-1: Introduction**

Human factors engineering is a field concerned with studying the design and development of systems and processes that affect the performance of employees in organizations, and aims to achieve higher efficiency in the use of human resources and improve the overall performance of the organization. The use of high performance systems is one of the most important tools that help achieve these goals.

There is a difficulty in determining the relationship between the application of human factors engineering and achieving high performance systems, as the influences that affect high performance in the organization may vary according to different circumstances and environments. Finally, there is a difficulty in identifying the most effective evaluation and measurement tools for high performance systems, as these tools must be able to measure performance improvement and the positive impact of applying human factors engineering, and at the same time they must be easy to apply and have high credibility. The main question in this area is:

What is the role of human resource engineering in achieving high performance systems?

In addition to some other questions such as:

What is the role of human factors engineering in achieving high performance and sustainability systems?

How can mechanisms to achieve high performance and sustainability in organizations be analyzed using human engineering?

### **1-2: The research problem**

One of the most important research problems in this field is the lack of a comprehensive and unified approach to the application of human factors engineering in institutions, as the approach used differs from one institution to another and is affected by many factors such as the type of industry, the size of the institution, and the nature of the work performed. In addition, there is difficulty in identifying the variables affecting high performance systems, as they are greatly affected by several factors such as institutional culture, technical skills of workers, nature of work performed, and others.

This research deals with the role of human factors engineering in achieving high performance systems and sustainability. Thus, the problem that this research is trying to solve is how to improve the performance of institutions and companies in a sustainable manner, by identifying and designing work systems and various procedures related to human resources, which directly affect the performance of the institution and its sustainability in the long term

### **1-3: Research goals**

- 1- Providing theoretical and practical features for managing organizations in a modern scientific way that focuses on human engineering factors.
- 2- Determine the dimensions of human factors engineering.
- 3- Clarify the concept of high performance systems.
- 4- Shedding light on the dimensions of high performance systems.
- 5- This research focused on the role of human factors engineering in achieving these goals, through improving internal work and operational systems and enhancing environmental awareness among all employees in the organization, using best management practices and training and development techniques.
- 6- Enhancing the performance of institutions and companies by improving work and operational systems and human resources, and achieving these goals in a sustainable manner, so that resources and the environment are preserved in the long term.

### **1-4: The importance of research**

Diagnosing and analyzing the relationship between human factors engineering and high performance systems confirms the following:

- 1- The concept of human factors engineering, as this subject is characterized by both modernity and scientific excellence.
- 2- Studying the relationship of human factors engineering to improving the quality of work, raising the efficiency of employees and increasing their productivity.
- 3- The role of human factors engineering in achieving high performance.
- 4- The use of artificial intelligence techniques in engineering human factors.
- 5- The concept of sustainability in human factors engineering and high performance systems:
- 6- The contribution of human factors engineering and high performance system in achieving sustainability.

7- Methods that can be applied to achieve sustainability in human factors engineering and high performance systems.

**1-5: research hypotheses**

Variables in the research

Human resources and high performance systems are essential elements for achieving success and organizational excellence. With the continuous increase in interest in sustainability, it has become necessary to study the impact of human resource engineering and sustainability factors on the performance of organizations. This research aims to explore the relationship between human resources, high performance systems and sustainability, and to determine how to integrate human resource engineering variables and sustainability as variables in high performance.

A basic variable, which is the factors of human resource engineering, and a dependent variable, which is sustainability within high performance, will be defined. We will study the relationship between these two variables, and determine the extent to which human resource engineering affects sustainability. Scientific research methodology will be used to collect and analyze data. Data will be analyzed using appropriate statistical techniques such as SPSS. Data collection methods include questionnaires directed at employees and management in institutions, and then research recommendations based on the conclusions.

We will explain these variables:

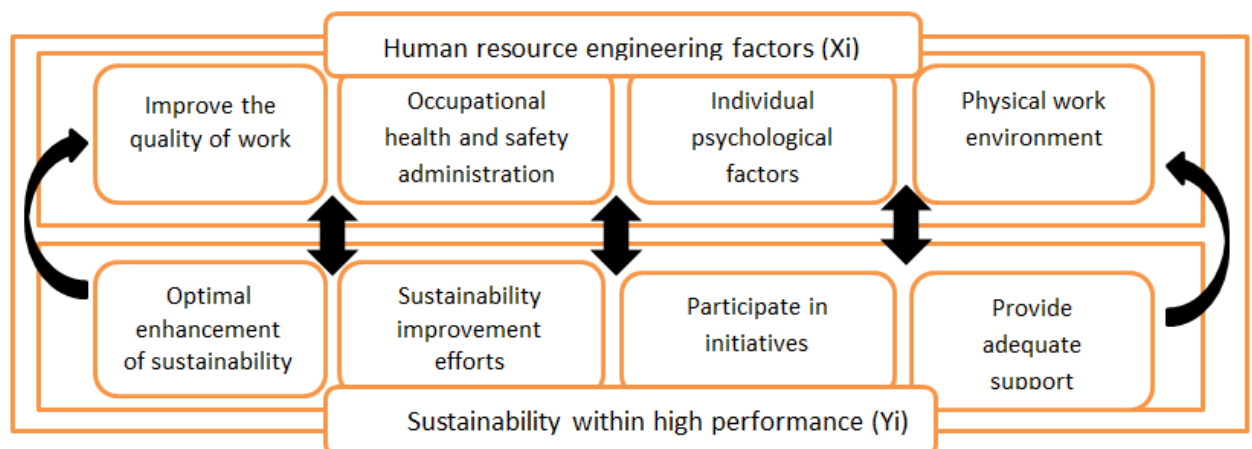
1. Primary Variable (X): Human Resource Engineering Factors.

This variable relates to the engineering elements of human resource management in organizations. These factors include aspects such as planning for career needs, selecting and hiring suitable personnel, developing skills and abilities, managing performance and appraisal, compensation and benefits, and applying effective human resource policies.

2. Dependent variable (Y): Sustainability within high performance.

This variable relates to the ability of organizations to achieve high performance in a sustainable manner through their practices and policies. Sustainability in this context can include aspects such as robust economic growth, preserving the environment, promoting social responsibility, and balancing the needs of the company, society and the environment.

A hypothetical research outline prepared by the researcher



## **2: The theoretical framework of the research**

### **2-1: the concept of human factors engineering**

Human factors engineering is one of the modern sciences concerned with designing and developing the work environment, relations between employees and management, and analyzing and developing the overall performance of institutions and companies. This field includes a number of concepts, tools and techniques aimed at improving the performance of organizations and increasing productivity and profitability. It is a specialized branch of applied psychology and applied biology, concerned with the design of human products, systems, processes, sites, and functional environments. The objective of this field is to improve the performance of employees at work and to enhance their safety, comfort and health.

Human factors engineering works to improve productivity and performance indicators through designing work sites, hand tools and tools, in addition to machines and equipment that take into account human physical capabilities.

Human factors engineering is affected by a group of factors related to the personality of the employee such as professional competence, experience, skills and abilities, including other personal behaviors such as intuition, creativity and tolerance. work within the organization. Cognitive maps are formed as internal images of events with the influence of psychological processes that reflect the behavior of the employee, and this internal image is an important factor in the success of management, and it is also a source of internal stability and contributes to improving information. and decision making<sup>1</sup>.

Human factors engineering refers to the determinants that are largely controllable in the engineering design process that support the administrative work aimed at improving good performance through the application of process system design principles<sup>2</sup>.

The engineering of human factors is one of the means by which the augmentation engineering process helps to ensure that human performance is maintained or improved and that it does not deteriorate when changes are made as a result of rapid progress and development in a rapidly changing environment<sup>3</sup>.

Human factors engineering aims to provide the information needed to promote an acceptable and efficient interaction between human resources, the equipment they use, and the environment in which they work. It is a set of knowledge concerned with human capabilities, limitations and other characteristics related to design and thus the application of this knowledge to design tools, machines, systems, tasks, functions and environments for safe and comfortable production operations.

In general, human factors engineering is a comprehensive, multidisciplinary field that includes a number of engineers, psychologists, biologists, and other experts who approach the design of systems, products, and processes through consideration of the associated human factors that modern management and high-performance organizations focus on<sup>16</sup>.

### **2-2: dimensions of human factors engineering:**

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<sup>1</sup> Vykopalová, Hana, and Martin Cupal. "Forensic engineering and the importance of the human factor." *Procedia-Social and Behavioral Sciences* 116 (2014): 1665-1669

<sup>2</sup> Kolus, Ahmet, Richard Wells, and Patrick Neumann. "Production quality and human factors engineering: a systematic review and theoretical framework." *Applied ergonomics* 73 (2018): 55-89

<sup>3</sup> Hugo, Jacques V., Casey R. Kovesdi, and Jeffrey C. Joe. "The strategic value of human factors engineering in control room modernization." *Progress in Nuclear Energy* 108 (2018): 381-390

The dimensions of human resources engineering include (physical work environment, psychological factors for the worker, occupational health and safety management)<sup>18</sup>.

**First: The physical work environment:** The physical work environment includes harmony between the work situation and the requirements for performing the tasks. Physical positions suitable for these activities.

**Second: The psychological factors of the individual:** The psychological factors include jobs that are commensurate with the qualifications and capabilities of individuals, and thus individuals feel psychological stability at work.

**Third: Occupational Health and Safety Department:** The Occupational Health and Safety Department includes determining a suitable level of lighting in the workplace, and the department takes into consideration colors and the extent of their impact on the structure and periphery of vision and providing appropriate heating and cooling tools, all in order to provide a suitable workplace and working conditions for individuals working in the organization.

The dimensions of human factors engineering can also be classified into<sup>4 21</sup>:

1-Physiological dimensions: These dimensions include the study of human vital processes such as vision, hearing and movement, and the design of products and systems that are compatible with these processes.

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<sup>16</sup> McCafferty, Denise B., E. Johan Hendrikse, and Gerry E. Miller. "Human factors engineering (HFE) and cultural calibration for vessel and offshore installation design." Cultural ergonomics. Emerald Group Publishing Limited, 2004. 105-145.

<sup>18</sup> Qardaghi, Kawa Muhammad Faraj and Mahmoud, Shilan Fadel (The role of some human engineering factors in achieving job absorption), College of Administration and Economics, University of Sulaymaniyah, (2013).

<sup>4</sup> Christine M. Haslegrave, "Human Factors Engineering and Ergonomics: A Systems Approach", 2017

<sup>21</sup> Wickens, C. D., Hollands, J. G., Banbury, S., " Engineering Psychology and Human Performance, 2015."

2- Cognitive dimensions: These dimensions include the study of how people absorb and interpret information, and design products and systems that provide information in an appropriate and easy-to-understand manner.

3- Psychological dimensions: These dimensions include the study of psychological and social interaction between humans, products and systems, and the design of products and systems that understand this interaction and improve the quality of life for the user.

4- Kinetic dimensions: These dimensions include the study of human movements and their ability to move naturally, and the design of products and systems that are compatible with the human ability to move and prove their safety.

5- Social dimensions: These dimensions include the study of how people interact with others in an environment that uses products and systems, and design products and systems that understand this interaction and improve the quality of social life.

So Human Factors Engineering is a broad field that covers many areas and includes many different aspects, and aims to improve the design of products, systems, services and processes by including the needs and capabilities of people, workers and users at all stages. In this way, quality, productivity, safety, health, comfort, flexibility and sustainability can be improved in processes and products. In addition, human factors engineering uses methods and tools such as utilization studies, hazard analysis, user testing, computer modeling, thermal imaging techniques, environmental monitoring, noise control, lighting, air conditioning, and refrigeration.

### **2-3: The relationship of human factors engineering to improving the quality of work, raising the efficiency of employees, and increasing their productivity.**

Scientific studies and field experiments prove that human factors engineering greatly affects work quality, employee efficiency and productivity. Human factors engineering means improving the work environment, designing tools, equipment and systems to suit the capabilities and needs of employees, and improving communication and interaction between employees in the organization. Human factors engineering is one of the most important methods that can be used to improve the quality of work and raise the efficiency of employees, as it helps in <sup>13</sup>:

- A. Improving the work environment: When designing an appropriate work

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<sup>13</sup> John A. Wise, V. David Hopkin, and Daniel J. Garland., "Human Factors in Organizational Design and Management", 1997 .

environment, employees feel comfortable, satisfied and psychologically stable, which increases their productivity and reduces the error rate at work.

B. Improving communication and interaction: When designing interactive systems that support communication between employees and the management of the organization, this allows good communication and exchange of ideas and opinions between them, which leads to improving the quality of work and increasing the efficiency of employees.

C. Designing tools and equipment: When designing tools and equipment in a way that facilitates the work of employees and reduces their efforts, this increases their productivity and raises their efficiency.

### **2-4: High performance systems**

#### **Introduction: the concept of high performance systems**

High performance systems is a concept that refers to a set of practices and processes that are applied to improve the performance of organizations and organizations. This system aims to achieve the desired goals and levels by improving efficiency, productivity, quality and reducing costs.

The high performance system includes several aspects, such as<sup>4</sup>:

1- Improving operations and total quality management: This aims to improve operations and make them more efficient and effective, in addition to applying international quality standards.

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<sup>4</sup> Geoffrey Matthews , Linda Holbeche, The High Performance Organization: Creating Dynamic Stability and Sustainable Success" , 2011.

2- Developing human resources: skills and capabilities are developed and performance is improved for employees through training, development, performance follow-up and evaluation.

3- Improving the system of rewards and incentives: which is used to encourage employees to achieve the desired goals and levels, and depends mainly on determining and evaluating performance levels.

4- Applying an effective strategy: which supports the achievement of the goals, vision and mission of the institution, and ensures the implementation of activities and projects in accordance with the specified plans.

5- The use of technology and innovation: which aims to develop innovative technical solutions and apply them in production and administrative processes to improve performance and increase efficiency.

In general, the high performance system seeks to achieve excellence and leadership in the field in which the organization operates, through the application of improved practices and tools to improve performance and improve quality, providing support and encouragement to employees to make the most of their abilities and skills.

High performance business systems are those organizations that use a radically different approach to management compared to the traditional incremental approach<sup>5</sup>.

And high performance systems refer to the great ability to quickly adapt to the many changes, which include the strategies of the organization and the organizational structure, and therefore has the ability to continuously improve, which requires more effort in order to develop its working capabilities<sup>5</sup>.

High performance systems focus on organizations being in a better position to succeed in improving product quality, reducing costs and facing the challenges of a turbulent business environment<sup>6</sup>.

High performance systems are one of the interrelated human resource practices that aim to attract, select, manage, and retain high quality human capital<sup>7</sup>.

The high performance systems are the basic rationale behind the success of the high performance work system is "the way people are managed and treated in the workplace has an impact on their level of performance - that is, on their productivity and efficiency"<sup>8</sup>.

## **2-5: Dimensions of high performance systems:**

The dimensions of high performance systems are five dimensions as follows<sup>6</sup>:

1- Quality of management: Faith and trust in others is encouraged because managers are trustworthy, live with integrity, show commitment, enthusiasm, and respect, and have a decisive style of decision-making that focuses on work. Thus, management holds people

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<sup>5</sup> De Waal, André A. "The characteristics of a high performance organization." *Business Strategy Series* 8.3 (2007): 179-17. Moura, Isabel, Caroline Dominguez, and João Varajão. "Information systems project teams: factors for high performance." *Team Performance Management: An International Journal* (2018).

<sup>6</sup> De Waal, André, Erjen van Nierop, and Laurens Sloot. "Analysing supermarket performance with the high-performance organisation framework." *International Journal of Retail & Distribution Management* 45.1 (2017): 57-70.

<sup>7</sup> García-Chas, Romina, Edelmira Neira-Fontela, and Concepción Varela-Neira. "High-performance work systems and job satisfaction: a multilevel model." *Journal of Managerial Psychology* 31.2 (2016): 451-466.

<sup>8</sup> Garg, Naval, and Bijender Kumar Punia. "Developing high performance work system for Indian insurance industry." *International Journal of Productivity and Performance Management* 66.3 (2017): 320-337.

accountable for their results by maintaining clear accountability for performance. Communicate values and strategy throughout the organization.

2- Openness and work orientation: That is, there is an open culture, which means that management values employee opinions and involves them in important

organizational processes. An employee may be allowed to make mistakes and it is considered an opportunity to learn. Employees spend a lot of time in dialogue, sharing knowledge and learning, to develop new ideas aimed at increasing their performance and making the organization's performance driven. Managers personally share experiences thus promoting an environment of change in the organization.

3- Long-term orientation: The organizations system grows through partnerships with suppliers and customers, so the long-term commitment extends to all stakeholders. Vacancies are filled by high potential internal candidates first, and people are encouraged to become leaders. The system creates a safe and sound workplace (physically and mentally).

4- Continuous improvement and renewal: The system compensates for dying strategies by renewing them and making them unique. The organization is constantly improving, streamlining and harmonizing its operations, innovating its products and services, and creating new sources of competitive advantage to respond to market developments. Moreover, it efficiently manages core strengths, and brings out non-core competencies which are considered weaknesses.

5- The quality of the employee: the organization assembles and employs a diverse and integrated management team and a workforce with maximum flexibility in work. The workforce is trained to be flexible and they are encouraged to develop their skills to achieve exceptional results and are held accountable for their own performance, as a result of which creativity is increased, leading to better results.

High performance systems can include several aspects, which can be classified into several dimensions<sup>9</sup>:

- A. Organizational dimensions: These dimensions include administrative elements related to system design and application in the organization, and among these elements: designing and organizing operations, developing policies and procedures, and developing evaluation and employment systems.
- B. Administrative dimensions: These dimensions include managing human resources and employees, developing their skills and improving their performance, developing training and development programs, and managing and determining performance and evaluation.
- C. Cultural dimensions: It is concerned with the values, beliefs, and behaviors that prevail in the institution, and that affect the success of the high performance system, and among these elements: transparency, justice, trust, innovation, and continuous learning.
- D. Technological dimensions: It relates to the technology used in the organization to improve its performance and increase its productivity. These dimensions include: the use of software and information systems, and modern technology such as artificial intelligence, robotics and automation.

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<sup>9</sup> Denton, Keith. "High performance work systems: the sum really is greater than its parts." *Measuring Business Excellence* 10.4 (2006): 4-7.

- E. Financial dimensions: related to the costs, profits and returns achieved from the application of the high performance system. These dimensions include: determining costs, budget management, and measuring and analyzing financial performance.
- F. Social dimensions: related to social relations and interactions within the organization, as well as with clients, partners and the surrounding community. These dimensions include: social justice, mutual respect, and social responsibility.

### **2-6: The role of human factors engineering in achieving high performance:**

Research indicates that human factors, such as skills, experience, knowledge, personality, and health, greatly influence performance. By studying these factors, obstacles affecting performance can be identified and new systems can be developed to improve performance. For example, it is possible to analyze processes and identify the obstacles facing their workers, and then design a new system that helps overcome these obstacles and achieve better performance. Human factors engineering contributes to achieving high performance by focusing on several different aspects, including<sup>10</sup>:

- 1- Tool design: It includes designing and developing the tools that workers use in performing their tasks, such as computers and other machines, so that they are easy to use and effective.
- 2- Improving work processes: By analyzing the processes, it is possible to identify the activities that constitute an obstacle for workers and to design new systems that overcome this obstacle.
- 3- Improving the work environment: This aspect includes several factors such as the interior design of buildings and spaces, the provision of appropriate lighting and ventilation, the provision of equipment necessary for work, and the provision of safety and health in the workplace.
- 4- Improving the health of workers: This includes taking care of the health of workers by focusing on health standards and providing appropriate medical support and training on occupational safety and health.
- 5- Developing skills: The skills of workers are developed through the provision of training and continuous education to improve their performance and develop their professional capabilities.
- 6- Improving communication and interaction: This requires improving the communication system within the organization, improving work relations between workers, and providing the necessary support to enhance interaction and cooperation in the workplace.

### **2-7: Using artificial intelligence techniques in engineering human factors:**

The world of human factors engineering is undergoing major transformations thanks to the use of modern technologies such as artificial intelligence and machine learning, as these technologies can be used to create performance systems based on accurate data and smart analytics. Modern technologies contribute to improving performance, increasing efficiency, improving the work environment, and achieving safety and health in the workplace.

Artificial intelligence techniques are used in human factors engineering to improve performance and productivity in business organizations by improving the work environment, employee skills, and work processes. This is done by collecting and analyzing data using artificial

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<sup>10</sup> Karwowski, W. (Ed.), International encyclopedia of ergonomics and human factors. CRC press, 2006

intelligence techniques, such as machine learning, artificial neural networks, image and voice recognition, and natural language.

For example, machine learning techniques and artificial neural networks can be used to analyze performance and productivity data and identify the factors that influence the achievement of high performance. By analyzing this data, a new system can be developed to help overcome these obstacles and achieve better performance.

In addition, AI techniques can be used to determine the training and development requirements of workers. By analyzing performance and productivity data, it is possible to identify the skills that workers need to develop and to provide them with appropriate training.

In this way, the use of artificial intelligence techniques in human factors engineering helps to improve performance, increase productivity, improve the work environment, and achieve safety and health in the workplace.

### **2-8: Sustainability; The concept of sustainability in human factors engineering and high performance systems:**

Sustainability is a critical factor in the long-term survival of businesses and institutions, and this sustainability is related to many factors, including using resources in a sustainable manner, preserving the environment, and caring for society. Sustainability is about ensuring the sustainable use of natural resources, reducing carbon emissions, and preserving the environment and community health.

Sustainability can be defined as: improving the quality of human life when we live within the carrying capacity of the supporting ecosystems<sup>11</sup>.

Specifically, in the field of human factor engineering and the high performance system, sustainability plays a key role in creating a sustainable and healthy work environment for workers, and it also contributes to improving the overall performance of institutions and companies in the long run.

The concept of sustainability is the optimal exploitation of available resources and capabilities, whether human, material or natural, in an effective and balanced environmental and urban manner to ensure the continuity of sustainability without wasting the gains of future generations<sup>12</sup>.

Human factors engineering and a high performance system can play a vital role in achieving sustainability. When designing high-quality performance systems, consideration must be given to the sustainable use of resources and the preservation of the environment. Moreover, these systems contribute to developing skills, improving worker health and increasing productivity, which in turn leads to high performance and long-term sustainability. Thus, human factors engineering and a high performance system can be used as powerful tools to achieve high performance in a sustainable manner and achieve long-term economic and social benefits for organizations and societies.

### **2-9: Contribution of Human Factors Engineering and High Performance System to Sustainability:**

Human factors engineering and a high performance system contribute to achieving sustainability in several ways, including<sup>13</sup>:

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<sup>11</sup> Article published on the website of Kirkuk University, September 2019

<sup>12</sup> Adam Ritchie, Randall Thomas, Sustainable Urban Design: An Environmental Approach, Taylor & Francis Group, 2009, (p.22).

<sup>13</sup> C. Kramar, R., & Syed, J. (2012). Guest editors' introduction: Human resource management for a sustainable future. *Journal of World Business*, 47(3), 395-398.

1. Planning for sustainable business operations: This includes looking at the sustainable use of resources and defining the strategies needed to achieve this goal.
2. Improving the work environment: This includes improving the design of buildings and interior spaces, providing adequate lighting and ventilation, and using environmentally friendly materials.
3. Skills development and training: This includes developing the skills of workers and providing training and continuing education on sustainable practices and how to work more effectively and sustainably.
4. Improving work processes: This includes developing sustainable work systems and processes that lead to a reduction in resource consumption and harmful emissions.

Thus, sustainability is not only a social imperative, but also a critical factor in achieving high performance in the long term. Human factors engineering and a high performance system can play a vital role in achieving sustainability. It plays a critical role in preserving the working environment and the health of workers, and also enhances the chances of companies and organizations to achieve sustainable success. Through human factors engineering and a high performance system, organizations can achieve high performance, increase productivity and profitability, while maintaining a healthy work environment and reducing carbon emissions and unsustainable use of resources. Sustainability has become a basic requirement in business, especially in large companies and government institutions. By integrating the concept of sustainability into the human factors engineering and high performance system, organizations can gain a competitive advantage and increase their chances of long-term success.

## **2-10: Methods that can be applied to achieve sustainability in human factors engineering and the high performance system:**

There are many approaches that can be applied to achieve sustainability in human factors engineering and a high performance system. Some of these methods include <sup>19 12</sup>:

1. Use of environmentally friendly materials: Environmentally friendly materials can be used in the design of buildings, furniture, equipment and consumables.
2. Reducing resource consumption: Efficiency in the use of natural resources such as water, energy and fuel can be improved by improving process design, processes and resource use management.

<sup>19</sup> S. Mariani, T. Lepak , "Sustainability and talent management: the role of HRM in building sustainable business models". *Journal of World Business*, 49(2), 204-211, 2014.

<sup>12</sup> I. Bamberger, L. Meshoulam , *Sustainable High Performance: "The Role of Human Resource Management"*, 2019.

3. Transition to renewable energy: Renewable energy such as solar, wind and thermal energy can be used to achieve sustainable energy and reduce carbon emissions.
4. Awareness and training: Focus on awareness and training related to sustainable practices and how to maintain a healthy work environment. Workshops, training courses and educational campaigns can be organized for all levels of employees.
5. Waste management: Waste management strategies such as recycling, reuse and waste disposal can be applied safely and effectively.
6. Evaluation and Reporting: The performance of companies and institutions should be evaluated regularly to measure progress in achieving sustainable goals, and companies

should prepare annual reports on the environmental and social impact of their operations.

7. Collaboration and Partnership: You must work with external parties such as suppliers, customers and partners to share sustainable practices and achieve common goals.

In short, achieving sustainability in the engineering of human factors and the high performance system requires thinking in an integrated manner and working to manage resources effectively, with a balance between achieving high performance and preserving the work environment and health of workers and preserving natural resources for future generations.

### 3: Research framework

#### 3-2: Selection of the study region

We conducted a questionnaire that includes a sample of the employees of Al-Mustansiriya University\ College of Administration and Economics, the sample includes 75 employees. Where several questions were asked to the employees, the questionnaire varied and included several topics that will be mentioned below, and we calculated the mean, median, and standard deviation (std. Deviation) for each case, as well as we drew illustrations for each case, we This analysis was done using SPSS software.

#### 3-3: Data collection

1- Human factors engineering: This factor includes:

- a. Physical work environment: The physical work environment includes harmony between the work situation and the requirements of performing tasks.

No	The description	Strongly disagree	not agree	neutral	agree	Strongly agree
	my boss in the job .....					
1	Do you think that the physical work environment in your organization is suitable for performing tasks effectively?	6	2	4	48	15
2	Do you feel comfortable in your current work environment?	2	7	2	40	24
3	Do you think that the work posture adequately matches the requirements for performing the tasks?	1	12	2	45	15
4	Do you think there are needs to improve the physical work environment in your organization?	3	3	3	44	22

- b. Psychological factors of the individual: Psychological factors include jobs that are commensurate with the qualifications and abilities of individuals, and thus individuals feel psychological stability at work.

No	The description	Strongly disagree	not agree	neutral	agree	Strongly agree
	my boss in the job .....					
1	Do you feel that your qualifications and abilities are used adequately at work?	8	5	5	43	14

2	I feel psychologically stable when working directly with my boss	8	8	5	31	23
3	I don't feel nervous when I'm doing work.	4	10	6	37	18
4	Do you feel that the work environment promotes a sense of challenge and stimulates personal ambitions?	5	5	7	38	20

Occupational health and safety management: Occupational health and safety management includes providing a suitable workplace and working conditions for individuals working in the organization.

No	The description my boss in the job .....	Strongly disagree	not agree	neutral	agree	Strongly agree
1	Do you feel that the level of lighting in your workplace is suitable and does not cause harm to your eyes?	8	4	7	40	16
2	Does the administration provide appropriate heating and cooling tools at the work site?	8	12	6	25	24
3	Do you feel that the colors used on the job site are appropriate and do not cause strain on your eyes?	5	8	8	34	20
4	Does the administration provide appropriate safety tools at the work site?	8	5	7	38	17

**2- High performance systems:**

a. Continuous improvement and renewal: The college is constantly working on improving its operations, services and technologies used in it, and training its employees to innovate.

No	The description my boss in the job .....	Strongly disagree	not agree	neutral	agree	Strongly agree
1	Do you think that the college is constantly working to improve its operations and services and develop them periodically?	11	7	5	34	18
2	Do you feel that the college respects students' opinions and takes into account their comments and observations in the process of continuous improvement?	8	12	5	27	23

3	Do you feel that the college relies on modern technologies and innovative tools to improve its educational operations and services?	7	10	9	29	20
4	Do you feel that the college invests enough in training faculty and staff for continuous innovation and development?	10	7	9	34	15

- b. Openness and work-oriented: means that management values employees' opinions and involves them in important organizational processes. An employee may be allowed to make mistakes and is seen as an opportunity to learn.

No	The description	Strongly disagree	not agree	neutral	agree	Strongly agree
	my boss in the job .....					
1	Do you feel that your management adopts a policy of openness and appreciation of employee opinions?	11	7	7	30	20
2	Do you think the administration welcomes the change?	9	15	6	22	23
3	Do you feel that your direct manager listens to your views and participates in the planning and organizing processes?	9	12	13	24	17
4	Do you think management frequently engages in dialogue with employees?	10	8	12	32	13

- c. Management quality: encouraging faith and trust in others.

No	The description	Strongly disagree	not agree	neutral	agree	Strongly agree
	my boss in the job .....					
1	Does your manager deal with fairness and override personal biases in making decisions?	12	9	5	28	21
2	Is management a role model for employees?	9	12	8	24	22
3	Are employees in the college treated fairly and equally, regardless of gender, age or academic background?	9	9	12	25	20
4	Is college management critical about outstanding performance?	9	8	10	29	19

- d. Employee Quality: The organization assembles and employs a diverse and integrated management team and a workforce with maximum work flexibility.

No	The description	Strongly disagree	not agree	neutral	agree	Strongly agree
	my boss in the job .....					
1	Do you think employees want to be held accountable for their results?	13	10	6	23	23
2	Do you think the staff at the college are flexible enough to deal with sudden changes?	9	9	7	25	25
3	Do you think staff at the college are trained to be flexible at work?	8	7	14	23	23
4	Do you think that employees deal with students and colleagues with tact, respect and flexibility in the education and training environment?	7	7	10	32	19

e. Long-term orientation: The organizations system grows through partnerships with suppliers and customers, so the long-term commitment extends to all stakeholders.

No	The description	Strongly disagree	not agree	neutral	agree	Strongly agree
	my boss in the job .....					
1	Do you think the college maintains good and long-term relationships with all stakeholders?	12	11	6	21	25
2	What do you think of the idea of adopting the long-term strategic college?	10	6	8	28	23
3	Do you believe that partnerships with suppliers and customers contribute to the college's long-term growth?	7	6	13	24	25
4	Do you think that the College's commitment to long-term partnerships gives it a competitive advantage in the long term?	9	6	11	27	22

### 3- Sustainability in Human Factors Engineering:

Knowing the extent to which the college is working on implementing sustainability, and the participation of employees in efforts to improve sustainability.

No	The description	Strongly disagree	not agree	neutral	agree	Strongly agree
	my boss in the job .....					
1	Do you think that the university cares about sustainability and applies its principles in its daily activities?	12	11	6	21	25
2	Do you think the university is providing enough support to improve sustainability in your department and the university college in general?	10	6	8	28	23

3	Do you think that staff should be involved in efforts to improve sustainability in their department and the University College in general?	7	6	13	24	25
4	Do you feel motivated to participate in the university's sustainability initiatives?	9	6	11	27	22

#### 4: Results and discussion

##### 4-1: Discussing the results of the questionnaire:

###### 1- : Human Factors Engineering:

In paragraph (a):

We find that the total percentage of respondents agreeing and strongly agreeing was 84% on the question: Do you think that the physical work environment in your organization is suitable for performing tasks effectively?

This percentage reached 85.2% when asked: Do you feel comfortable in the current work environment?

This percentage reached 80% on the question: Do you think that the work situation matches the requirements for performing the tasks adequately?

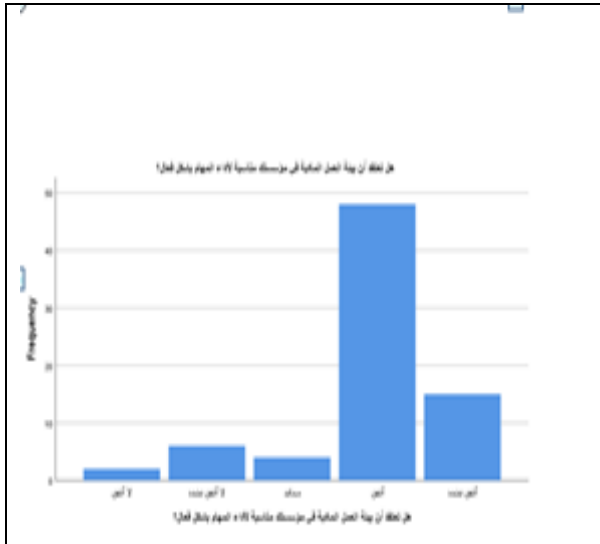
This percentage reached 88% on the question: Do you think there are needs to improve the physical work environment in your organization?

This indicates the employees' satisfaction with the physical work environment and their agreement that it achieves harmony between the work situation and the requirements of performing tasks.

**Analyzing this data in the SPSS program, we find the following results:**

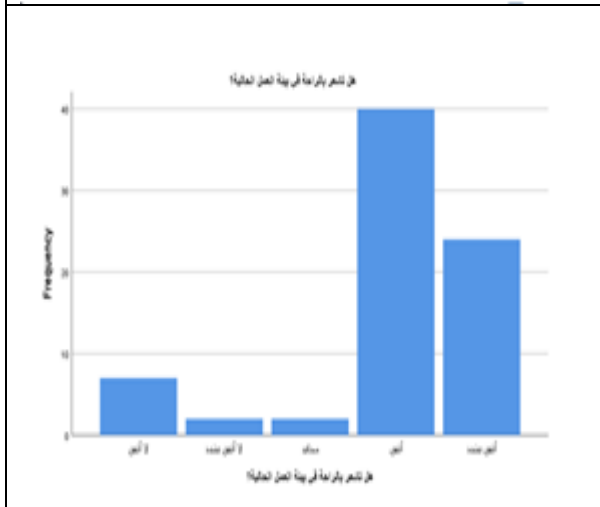
###### Statistics

		Do you think that the physical work environment in your organization is suitable for performing tasks effectively?	Do you feel comfortable in your current work environment?	Do you think that the work posture adequately matches the requirements for performing the tasks?	Do you think there are needs to improve the physical work environment in your organization?
N	Valid	75	75	75	75
	Missing	0	0	0	0
Mean		3.91	3.96	3.67	4.05
Median		4.00	4.00	4.00	4.00
Std. Deviation		.903	1.144	1.277	.928



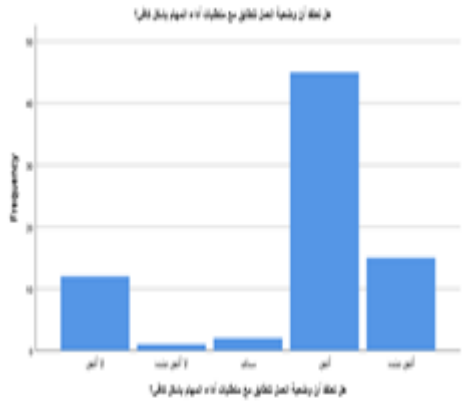
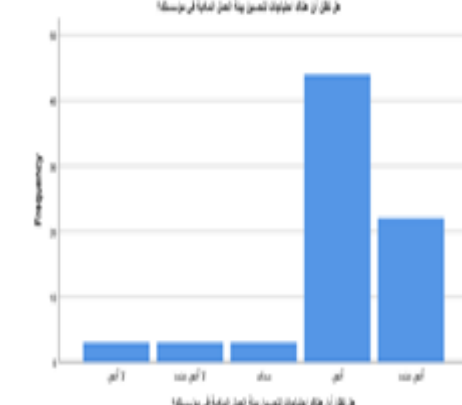
**Do you believe that the physical work environment in your organization is suitable for performing tasks effectively?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I do not agree	2	2.7	2.7	2.7
	Strongly disagree	6	8.0	8.0	10.7
	neutral	4	5.3	5.3	16.0
	I agree	48	64.0	64.0	80.0
	Strongly agree	15	20.0	20.0	100.0
	Total	75	100.0	100.0	



**Do you feel comfortable in your current work environment?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I do not agree	7	9.3	9.3	9.3
	Strongly disagree	2	2.7	2.7	12.0
	neutral	2	2.7	2.7	14.7
	I agree	40	53.3	53.3	68.0
	Strongly agree	24	32.0	32.0	100.0
	Total	75	100.0	100.0	

	<p>Do you think that the work posture adequately matches the requirements for performing the tasks?</p> <table border="1"> <thead> <tr> <th></th> <th>Frequency</th> <th>Percent</th> <th>Valid Percent</th> <th>Cumulative Percent</th> </tr> </thead> <tbody> <tr> <td>Valid I do not agree</td> <td>12</td> <td>16.0</td> <td>16.0</td> <td>16.0</td> </tr> <tr> <td>Strongly disagree</td> <td>1</td> <td>1.3</td> <td>1.3</td> <td>17.3</td> </tr> <tr> <td>neutral</td> <td>2</td> <td>2.7</td> <td>2.7</td> <td>20.0</td> </tr> <tr> <td>I agree</td> <td>45</td> <td>60.0</td> <td>60.0</td> <td>80.0</td> </tr> <tr> <td>Strongly agree</td> <td>15</td> <td>20.0</td> <td>20.0</td> <td>100.0</td> </tr> <tr> <td>Total</td> <td>75</td> <td>100.0</td> <td>100.0</td> <td></td> </tr> </tbody> </table>		Frequency	Percent	Valid Percent	Cumulative Percent	Valid I do not agree	12	16.0	16.0	16.0	Strongly disagree	1	1.3	1.3	17.3	neutral	2	2.7	2.7	20.0	I agree	45	60.0	60.0	80.0	Strongly agree	15	20.0	20.0	100.0	Total	75	100.0	100.0	
	Frequency	Percent	Valid Percent	Cumulative Percent																																
Valid I do not agree	12	16.0	16.0	16.0																																
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	<p>Do you think there are needs to improve the physical work environment in your organization?</p> <table border="1"> <thead> <tr> <th></th> <th>Frequency</th> <th>Percent</th> <th>Valid Percent</th> <th>Cumulative Percent</th> </tr> </thead> <tbody> <tr> <td>Valid I do not agree</td> <td>3</td> <td>4.0</td> <td>4.0</td> <td>4.0</td> </tr> <tr> <td>Strongly disagree</td> <td>3</td> <td>4.0</td> <td>4.0</td> <td>8.0</td> </tr> <tr> <td>neutral</td> <td>3</td> <td>4.0</td> <td>4.0</td> <td>12.0</td> </tr> <tr> <td>I agree</td> <td>44</td> <td>58.7</td> <td>58.7</td> <td>70.7</td> </tr> <tr> <td>Strongly agree</td> <td>22</td> <td>29.3</td> <td>29.3</td> <td>100.0</td> </tr> <tr> <td>Total</td> <td>75</td> <td>100.0</td> <td>100.0</td> <td></td> </tr> </tbody> </table>		Frequency	Percent	Valid Percent	Cumulative Percent	Valid I do not agree	3	4.0	4.0	4.0	Strongly disagree	3	4.0	4.0	8.0	neutral	3	4.0	4.0	12.0	I agree	44	58.7	58.7	70.7	Strongly agree	22	29.3	29.3	100.0	Total	75	100.0	100.0	
	Frequency	Percent	Valid Percent	Cumulative Percent																																
Valid I do not agree	3	4.0	4.0	4.0																																
Strongly disagree	3	4.0	4.0	8.0																																
neutral	3	4.0	4.0	12.0																																
I agree	44	58.7	58.7	70.7																																
Strongly agree	22	29.3	29.3	100.0																																
Total	75	100.0	100.0																																	

In paragraph (b):

We find that the total percentage of respondents agreeing and strongly agreeing was 76% on the question: Do you feel that your qualifications and abilities are used adequately at work?

This percentage reached 72% on the question: I feel psychological stability when working directly with my boss

This percentage reached 73.3% on the question: I do not feel nervous when I complete the work.

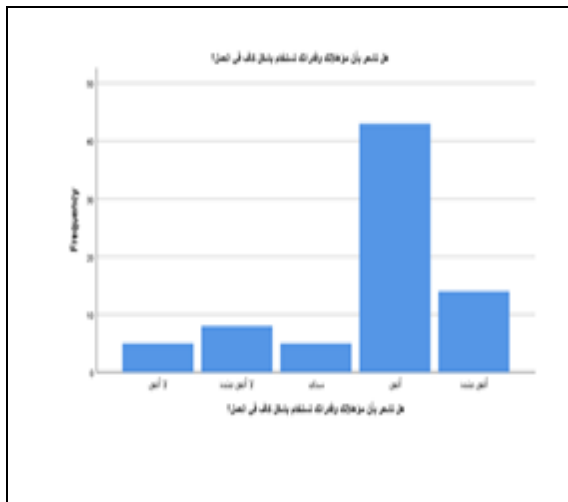
This percentage reached 77.4% on the question: Do you feel that the work environment enhances a sense of challenge and stimulates personal ambitions?

This indicates that employees feel psychologically stable at work.

Analyzing this data in the SPSS program, we find the following results:

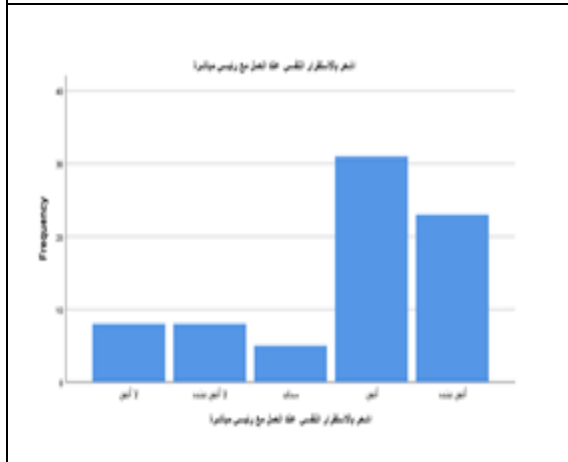
**Statistics**

		Do you feel that your qualifications and abilities are used adequately at work?	I feel psychologically stable when working directly with my boss	I don't feel nervous when I'm doing work.	Do you feel that the work environment promotes a sense of challenge and stimulates personal ambitions?
N	Valid	75	75	75	75
	Missing	0	0	0	0
Mean		3.71	3.71	3.65	3.84
Median		4.00	4.00	4.00	4.00
Std. Deviation		1.100	1.303	1.279	1.103



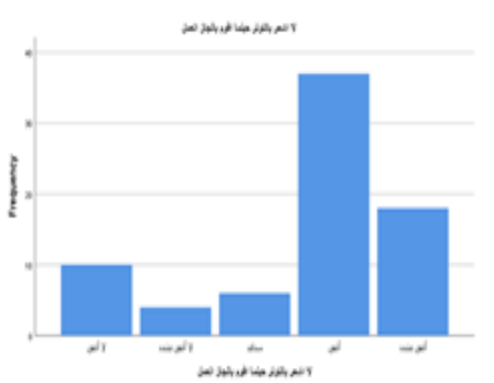

**Do you feel that your qualifications and abilities are used adequately at work?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I do not agree	5	6.7	6.7	6.7
	Strongly disagree	8	10.7	10.7	17.3
	neutral	5	6.7	6.7	24.0
	I agree	43	57.3	57.3	81.3
	Strongly agree	14	18.7	18.7	100.0
Total		75	100.0	100.0	



**I feel psychologically stable when working directly with my boss**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I do not agree	8	10.7	10.7	10.7
	Strongly disagree	8	10.7	10.7	21.3
	neutral	5	6.7	6.7	28.0
	I agree	31	41.3	41.3	69.3
	Strongly agree	23	30.7	30.7	100.0
Total		75	100.0	100.0	

	<p>I don't feel nervous when I'm doing work</p> <table border="1"> <thead> <tr> <th></th> <th>Frequency</th> <th>Percent</th> <th>Valid Percent</th> <th>Cumulative Percent</th> </tr> </thead> <tbody> <tr> <td>Valid I do not agree</td> <td>10</td> <td>13.3</td> <td>13.3</td> <td>13.3</td> </tr> <tr> <td>Strongly disagree</td> <td>4</td> <td>5.3</td> <td>5.3</td> <td>18.7</td> </tr> <tr> <td>neutral</td> <td>6</td> <td>8.0</td> <td>8.0</td> <td>26.7</td> </tr> <tr> <td>I agree</td> <td>37</td> <td>49.3</td> <td>49.3</td> <td>76.0</td> </tr> <tr> <td>Strongly agree</td> <td>18</td> <td>24.0</td> <td>24.0</td> <td>100.0</td> </tr> <tr> <td>Total</td> <td>75</td> <td>100.0</td> <td>100.0</td> <td></td> </tr> </tbody> </table>		Frequency	Percent	Valid Percent	Cumulative Percent	Valid I do not agree	10	13.3	13.3	13.3	Strongly disagree	4	5.3	5.3	18.7	neutral	6	8.0	8.0	26.7	I agree	37	49.3	49.3	76.0	Strongly agree	18	24.0	24.0	100.0	Total	75	100.0	100.0	
	Frequency	Percent	Valid Percent	Cumulative Percent																																
Valid I do not agree	10	13.3	13.3	13.3																																
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Valid I do not agree	5	6.7	6.7	6.7																																
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I agree	38	50.7	50.7	73.3																																
Strongly agree	20	26.7	26.7	100.0																																
Total	75	100.0	100.0																																	

In paragraph (c):

We find that the total percentage of respondents agreeing and strongly agreeing was 74.6% on the question: Do you feel that the level of lighting in your workplace is appropriate and does not cause harm to your eyes?

This percentage reached 65.3% when asked: Does the administration provide appropriate heating and cooling tools at the work site?

This percentage reached 72% on the question: Do you feel that the colors used in the work site are appropriate and do not cause stress to your eyes?

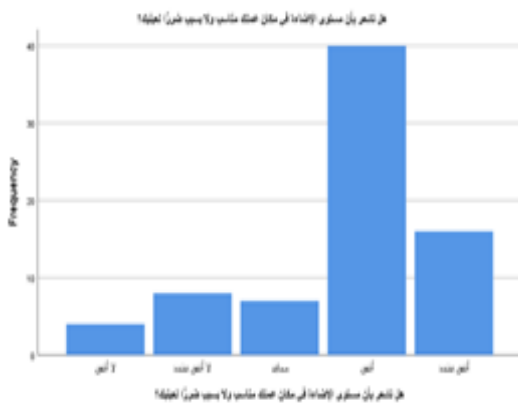
This percentage reached 73.4% when asked: Does the administration provide appropriate safety tools at the work site?

This indicates that the employees agree that the administration provides a suitable workplace and working conditions for the individuals working in the college.

Analyzing this data in the SPSS program, we find the following results:

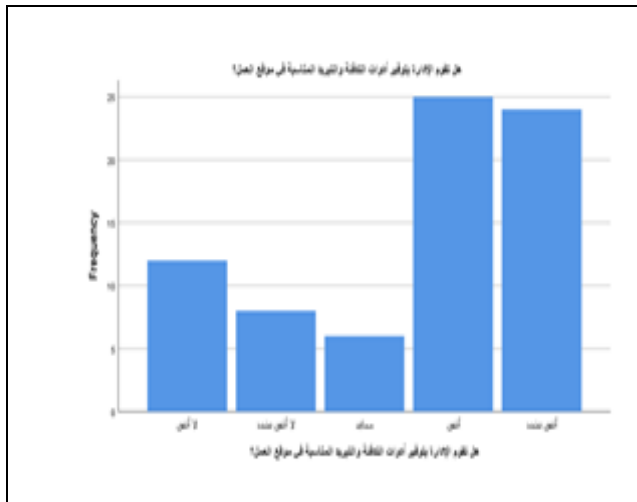
**Statistics**

		Do you feel that the level of lighting in your workplace is suitable and does not cause harm to your eyes?	Does administration provide appropriate heating and cooling tools at the work site?	Do you feel that the colors used on the job site are appropriate and do not cause strain on your eyes?	Does the administration provide appropriate safety tools at the work site?
N	Valid	75	75	75	75
	Missing	0	0	0	0
Mean		3.75	3.55	3.71	3.72
Median		4.00	4.00	4.00	4.00
Std. Deviation		1.079	1.445	1.239	1.134



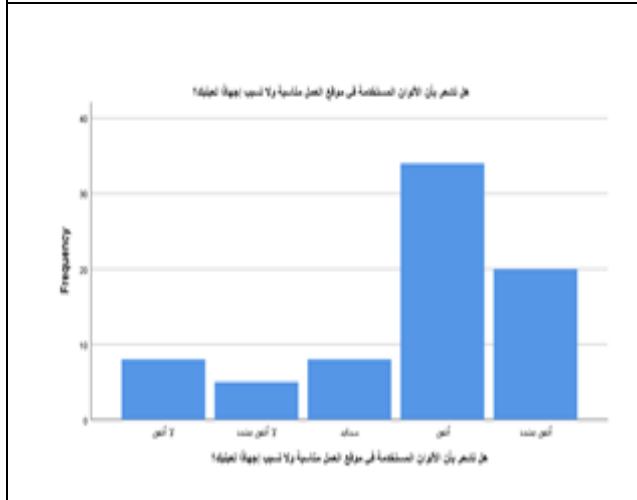
**Do you feel that the level of lighting in your workplace is appropriate and does not cause harm to your eyes?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	4	5.3	5.3	5.3
Strongly disagree	8	10.7	10.7	16.0
neutral	7	9.3	9.3	25.3
I agree	40	53.3	53.3	78.7
Strongly agree	16	21.3	21.3	100.0
Total	75	100.0	100.0	



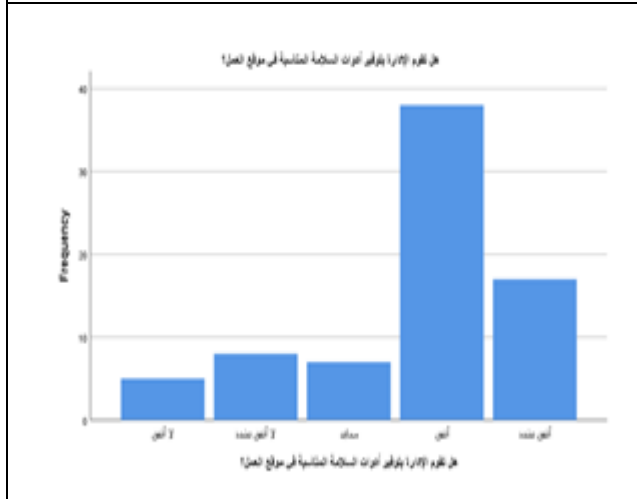
Does the administration provide appropriate heating and cooling tools at the work site?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	12	16.0	16.0	16.0
Strongly disagree	8	10.7	10.7	26.7
neutral	6	8.0	8.0	34.7
I agree	25	33.3	33.3	68.0
Strongly agree	24	32.0	32.0	100.0
Total	75	100.0	100.0	



Do you feel that the colors used on the job site are appropriate and do not cause strain on your eyes?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	8	10.7	10.7	10.7
Strongly disagree	5	6.7	6.7	17.3
neutral	8	10.7	10.7	28.0
I agree	34	45.3	45.3	73.3
Strongly agree	20	26.7	26.7	100.0
Total	75	100.0	100.0	



Does the administration provide appropriate safety tools at the work site?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	5	6.7	6.7	6.7
Strongly disagree	8	10.7	10.7	17.3
neutral	7	9.3	9.3	26.7
I agree	38	50.7	50.7	77.3
Strongly agree	17	22.7	22.7	100.0
Total	75	100.0	100.0	

**2- High Performance Systems:**

Paragraph (a):

We find that the total percentage of respondents agreeing and strongly agreeing was 69.3% on the question: Do you think that the college is constantly working on improving its operations and services and developing them periodically?

This percentage reached 66.7% on the question: Do you feel that the college respects students' opinions and takes into account their comments and observations in the process of continuous improvement?

This percentage reached 65.4% on the question: Do you feel that the college relies on modern technologies and innovative tools to improve its operations and educational services?

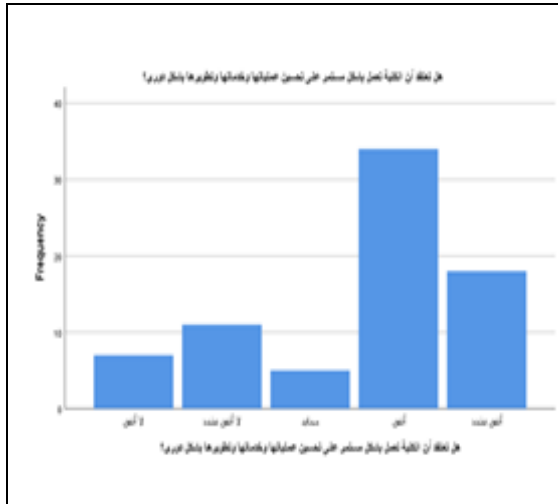
And 65.3% agreed on the question: Do you feel that the college invests enough in training faculty and staff members on innovation and continuous development?

This indicates that the college is constantly working to improve its operations, services and technologies used in it, and trains its employees to innovate.

**Analyzing this data in the SPSS program, we find the following results:**

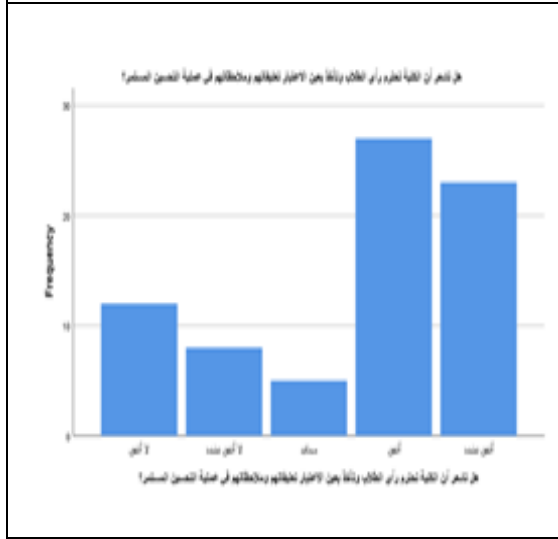
**Statistics**

		Do you think that the college is constantly working to improve its services and develop them periodically?	Do you feel that the college respects students' opinions and their comments and observations in the process of continuous improvement?	Do you feel that the college relies on modern technologies and innovative tools to improve its operations and educational services?	Do you feel that the college invests enough in training faculty and staff for continuous innovation and development?
N	Valid	75	75	75	75
	Missing	0	0	0	0
Mean		3.60	3.55	3.56	3.53
Median		4.00	4.00	4.00	4.00
Std. Deviation		1.263	1.436	1.338	1.223



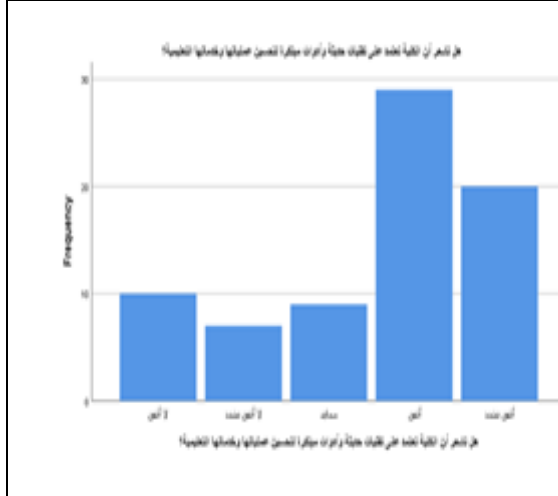
**Do you think that the college is constantly working to improve its operations and services and develop them periodically?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	7	9.3	9.3	9.3
Strongly disagree	11	14.7	14.7	24.0
neutral	5	6.7	6.7	30.7
I agree	34	45.3	45.3	76.0
Strongly agree	18	24.0	24.0	100.0
Total	75	100.0	100.0	



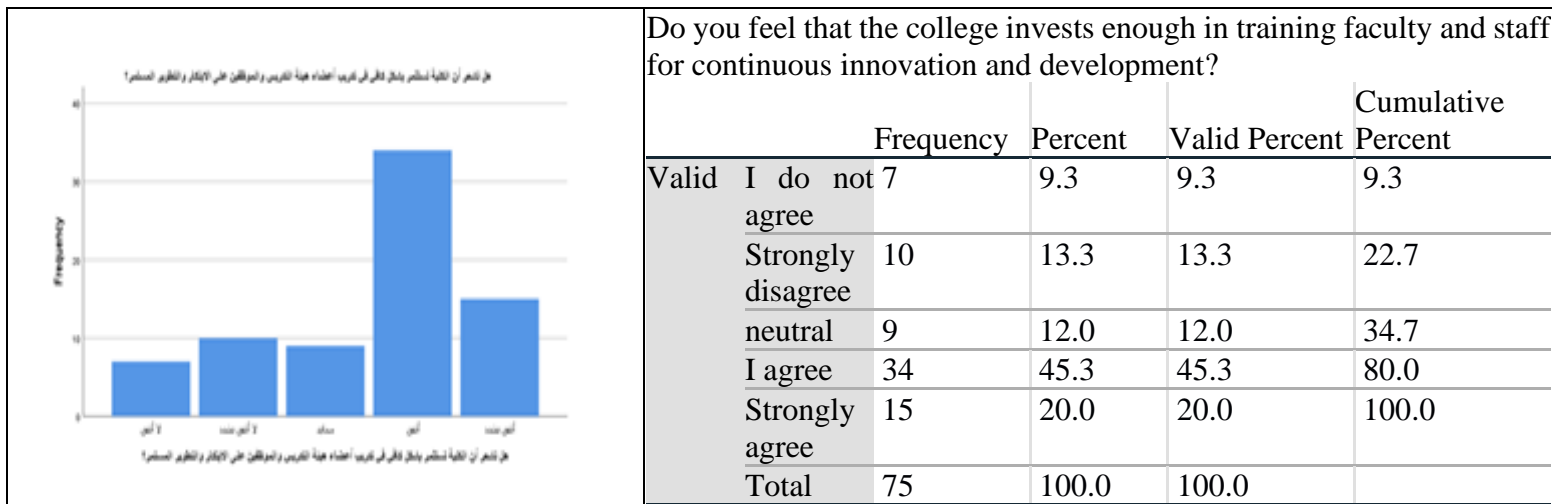
**Do you feel that the college respects students' opinions and takes into account their comments and observations in the process of continuous improvement?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	12	16.0	16.0	16.0
Strongly disagree	8	10.7	10.7	26.7
neutral	5	6.7	6.7	33.3
I agree	27	36.0	36.0	69.3
Strongly agree	23	30.7	30.7	100.0
Total	75	100.0	100.0	



**Do you feel that the college relies on modern technologies and innovative tools to improve its educational operations and services?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	10	13.3	13.3	13.3
Strongly disagree	7	9.3	9.3	22.7
neutral	9	12.0	12.0	34.7
I agree	29	38.7	38.7	73.3
Strongly agree	20	26.7	26.7	100.0
Total	75	100.0	100.0	



Paragraph (b):

We find that the total percentage of respondents agreeing and strongly agreeing was 66.7% on the question: Do you feel that your management adopts a policy of openness and appreciation of employee opinions?

This percentage reached 60% when asked: Do you think that the administration welcomes change?

This percentage reached 54.7% on the question: Do you feel that your direct manager listens to your views and participates in the planning and organizing processes?

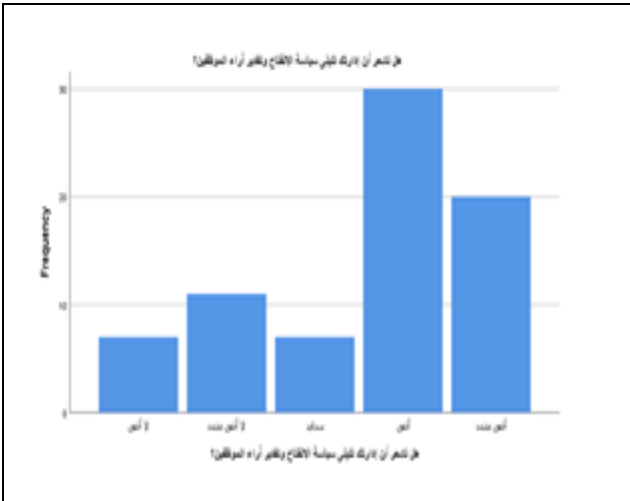
This percentage reached 58% when asked: Do you think that management frequently engages in dialogue with employees?

This indicates that management values employees' opinions and involves them in important organizational processes.

Analyzing this data in the SPSS program, we find the following results:

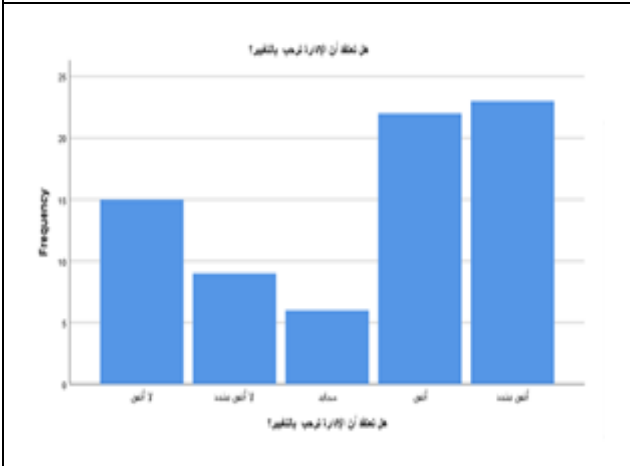
**Statistics**

	Do you feel that your management adopts a policy of openness and appreciation of employee opinions?	Do you think the administration welcomes the change?	Do you feel that your direct manager listens to your views and participates in the planning and organizing processes?	Do you think management frequently engages in dialogue with employees?
N	Valid 75 Missing 0	75 0	75 0	75 0
Mean	3.60	3.39	3.33	3.43
Median	4.00	4.00	4.00	4.00
Std. Deviation	1.284	1.524	1.379	1.232



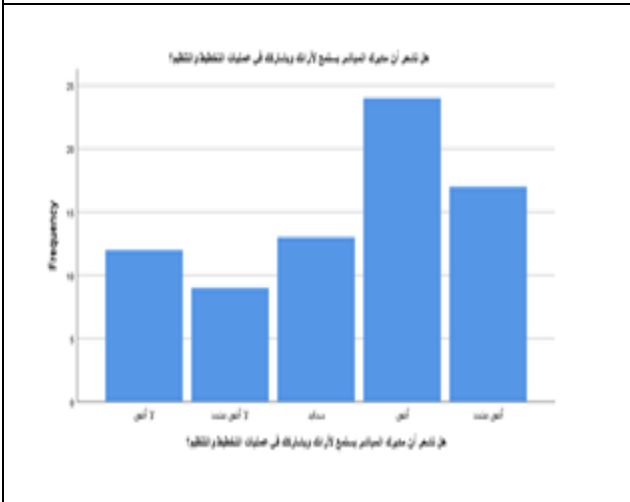
**Do you feel that your management adopts a policy of openness and appreciation of employee opinions?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	7	9.3	9.3	9.3
Strongly disagree	11	14.7	14.7	24.0
neutral	7	9.3	9.3	33.3
I agree	30	40.0	40.0	73.3
Strongly agree	20	26.7	26.7	100.0
Total	75	100.0	100.0	



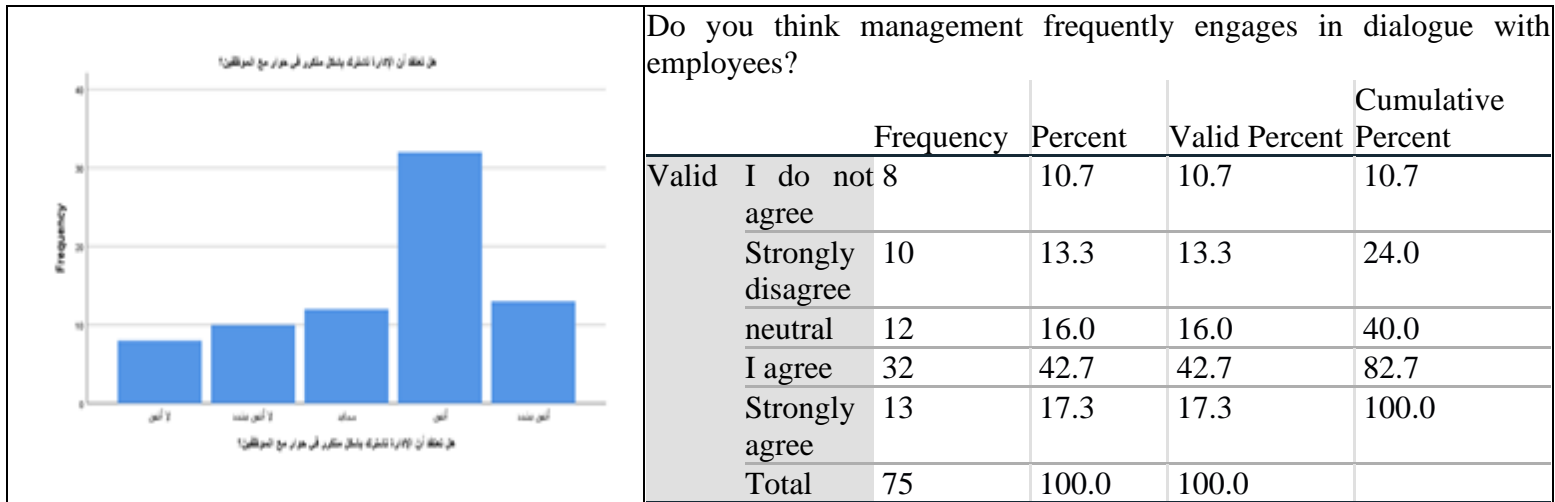
**Do you think the administration welcomes the change?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	15	20.0	20.0	20.0
Strongly disagree	9	12.0	12.0	32.0
neutral	6	8.0	8.0	40.0
I agree	22	29.3	29.3	69.3
Strongly agree	23	30.7	30.7	100.0
Total	75	100.0	100.0	



**Do you feel that your direct manager listens to your views and participates in the planning and organizing processes?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	12	16.0	16.0	16.0
Strongly disagree	9	12.0	12.0	28.0
neutral	13	17.3	17.3	45.3
I agree	24	32.0	32.0	77.3
Strongly agree	17	22.7	22.7	100.0
Total	75	100.0	100.0	



Paragraph (c):

We find that the total percentage of respondents agreeing and strongly agreeing was 65.3% on the question: Does your manager deal with fairness and override personal biases in decision-making?

This percentage reached 61.3% when asked: Is management a role model for employees? This percentage reached 60% on the question: Are employees in the college treated fairly and equally, regardless of gender, age or academic background?

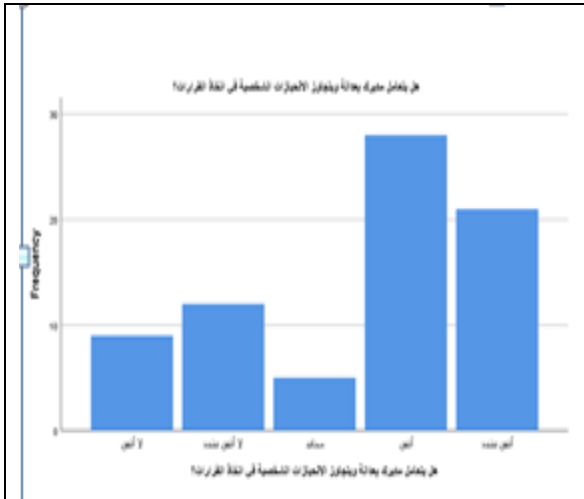
This percentage reached 64% on the question: Is the college administration critical with regard to unexecuted performance?

This indicates that managers are trustworthy, live with integrity, and show commitment, enthusiasm, and respect.

Analyzing this data in the SPSS program, we find the following results:

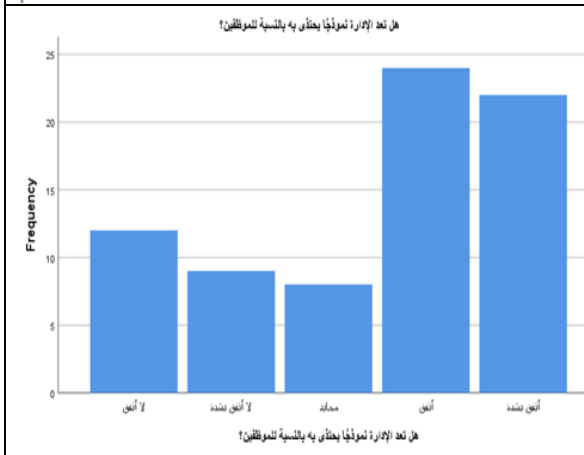
Statistics

	Does your manager deal with fairness and override personal biases in making decisions?	Is management a role model for employees?	Are employees in the college treated fairly and equally, regardless of gender, age or academic background?	Is college management critical about outstanding performance?
N	Valid 75	75	75	75
	Missing 0	0	0	0
Mean	3.53	3.47	3.51	3.56
Median	4.00	4.00	4.00	4.00
Std. Deviation	1.369	1.436	1.329	1.287



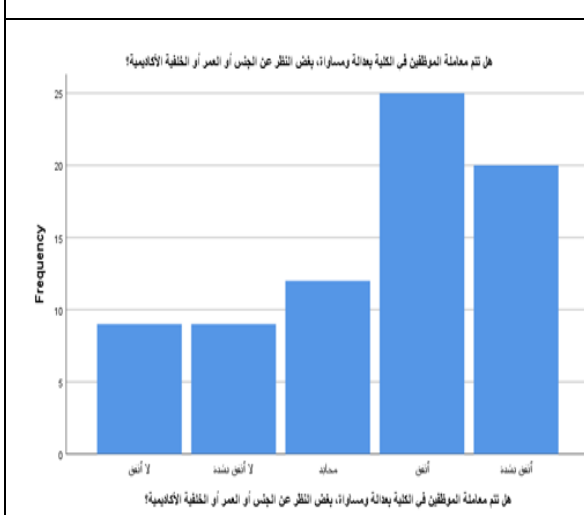
**Does your manager deal with fairness and override personal biases in making decisions?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	9	12.0	12.0	12.0
Strongly disagree	12	16.0	16.0	28.0
neutral	5	6.7	6.7	34.7
I agree	28	37.3	37.3	72.0
Strongly agree	21	28.0	28.0	100.0
Total	75	100.0	100.0	



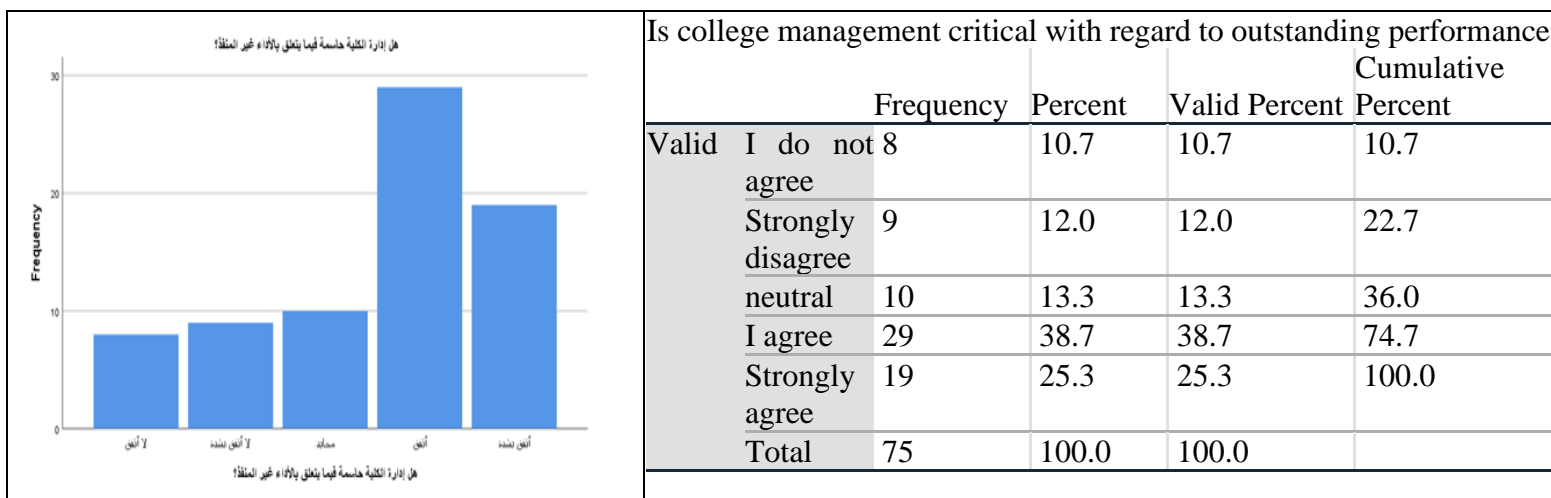
**Is management a role model for employees?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	12	16.0	16.0	16.0
Strongly disagree	9	12.0	12.0	28.0
neutral	8	10.7	10.7	38.7
I agree	24	32.0	32.0	70.7
Strongly agree	22	29.3	29.3	100.0
Total	75	100.0	100.0	



**Are employees in the college treated fairly and equally, regardless of gender, age or academic background?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	9	12.0	12.0	12.0
Strongly disagree	9	12.0	12.0	24.0
neutral	12	16.0	16.0	40.0
I agree	25	33.3	33.3	73.3
Strongly agree	20	26.7	26.7	100.0
Total	75	100.0	100.0	



Paragraph (d):

We find that a total of 61.4% of respondents agreed and strongly agreed on the question: Do you think that employees want to be responsible for their results?

This percentage reached 66.6% when asked: Do you think that the staff at the college are flexible enough to deal with sudden changes?

This percentage reached 61.4% when asked: Do you think that employees are trained in the college on flexibility in work?

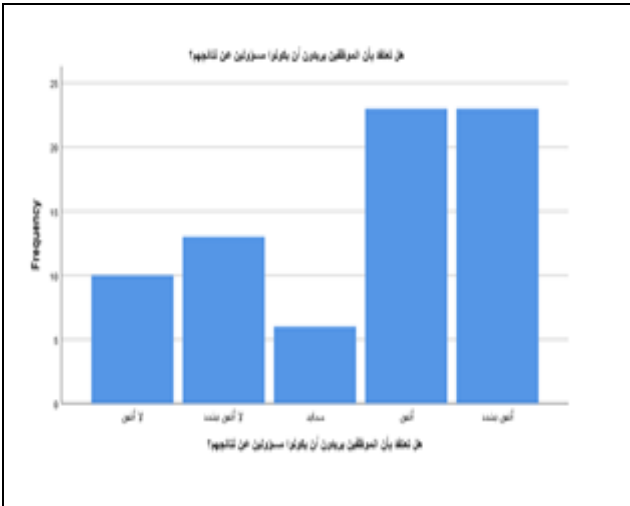
This percentage reached 68% when asked: Do you think that employees deal with students and colleagues with tact, respect and flexibility in the education and training environment?

This indicates that the College is assembling and employing a diverse and integrated management team and a workforce with maximum flexibility in work.

Analyzing this data in the SPSS program, we find the following results:

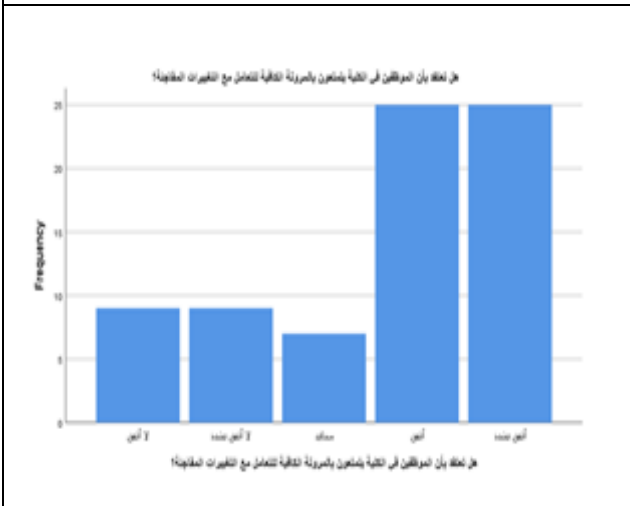
Statistics

	Do you think the employees want to be held accountable for their results?	Do you think staff at the college are flexible enough to deal with sudden changes?	Do you think staff at the college are trained to be flexible at work?	Do you think that employees deal with students and colleagues with tact, respect and flexibility in the education and training environment?
N	Valid 75	75	75	75
	Missing 0	0	0	0
Mean	3.48	3.64	3.63	3.65
Median	4.00	4.00	4.00	4.00
Std. Deviation	1.427	1.372	1.282	1.225



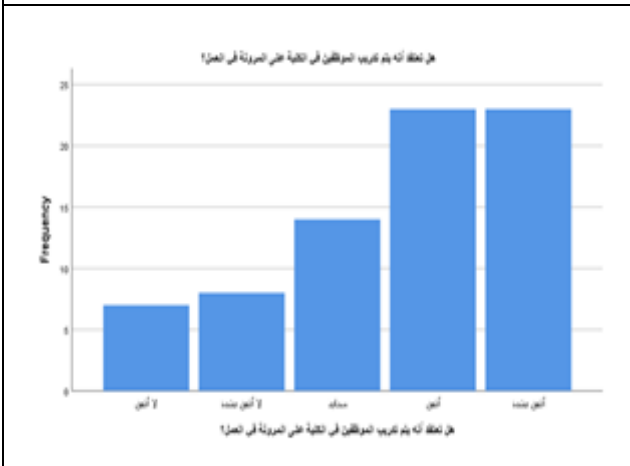
**Do you think employees want to be held accountable for their results?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	10	13.3	13.3	13.3
Strongly disagree	13	17.3	17.3	30.7
neutral	6	8.0	8.0	38.7
I agree	23	30.7	30.7	69.3
Strongly agree	23	30.7	30.7	100.0
Total	75	100.0	100.0	



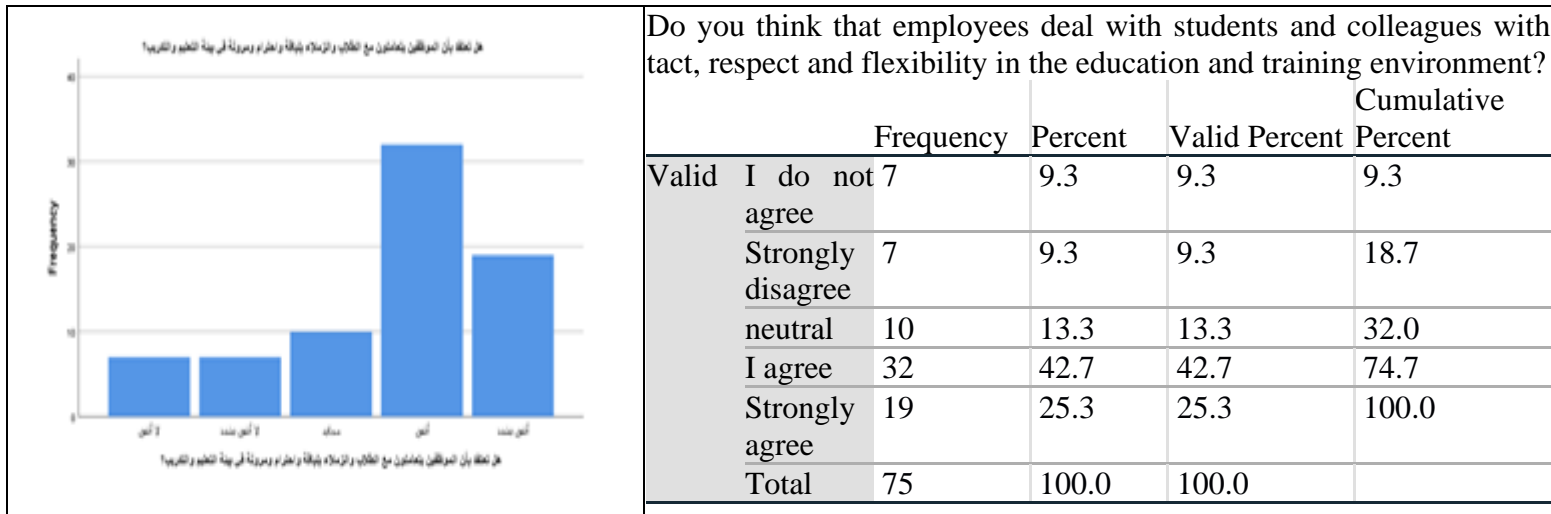
**Do you think that the staff in the college are flexible enough to deal with sudden changes?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	9	12.0	12.0	12.0
Strongly disagree	9	12.0	12.0	24.0
neutral	7	9.3	9.3	33.3
I agree	25	33.3	33.3	66.7
Strongly agree	25	33.3	33.3	100.0
Total	75	100.0	100.0	



**Do you think staff are trained in college to be flexible at work?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	7	9.3	9.3	9.3
Strongly disagree	8	10.7	10.7	20.0
neutral	14	18.7	18.7	38.7
I agree	23	30.7	30.7	69.3
Strongly agree	23	30.7	30.7	100.0
Total	75	100.0	100.0	



Paragraph (e):

We find that the total percentage of respondents agreeing and strongly agreeing was 61.3% on the question: Do you think that the college maintains good and long-term relationships with all stakeholders?

This percentage reached 68% when asked: What do you think of the idea of adopting the long-term strategic college?

This percentage reached 65.3% on the question: Do you think that partnerships with suppliers and customers contribute to the growth of the college in the long run?

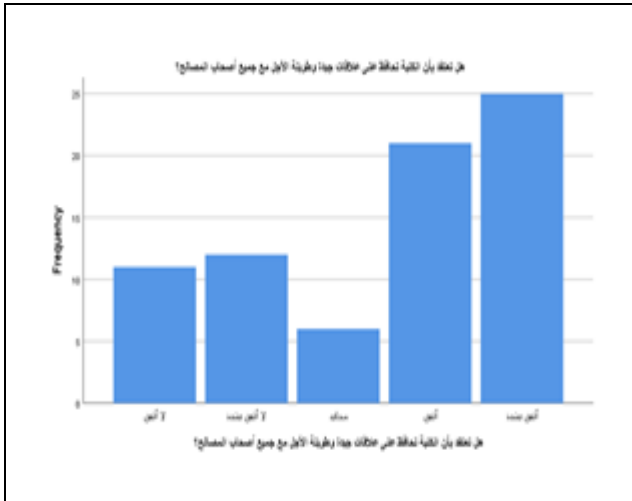
This percentage reached 65.3% when asked: Do you think that the college's commitment to long-term partnerships gives it a competitive advantage in the long run?

This signifies a long-term commitment extending to all stakeholders.

**Analyzing this data in the SPSS program, we find the following results:**

**Statistics**

	Do you think the college maintains good and long-term relationships with all stakeholders?	What do you think of the idea of adopting the long-term strategic college?	Do you believe that the partnerships with suppliers and customers contribute to the college's long-term growth?	Do you think that the College's commitment to long-term partnerships gives it a competitive advantage in the long term?
N	Valid 75 Missing 0	75 0	75 0	75 0
Mean	3.49	3.69	3.73	3.67
Median	4.00	4.00	4.00	4.00
Std. Deviation	1.465	1.262	1.245	1.245



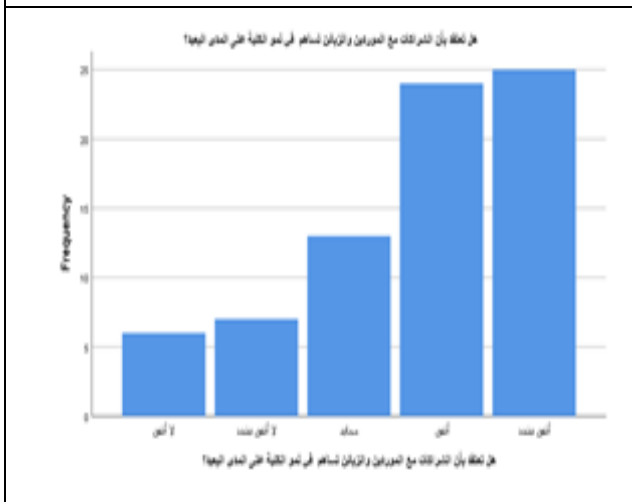
**Do you believe that the College maintains good and long-term relationships with all stakeholders**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	11	14.7	14.7	14.7
Strongly disagree	12	16.0	16.0	30.7
neutral	6	8.0	8.0	38.7
I agree	21	28.0	28.0	66.7
Strongly agree	25	33.3	33.3	100.0
Total	75	100.0	100.0	



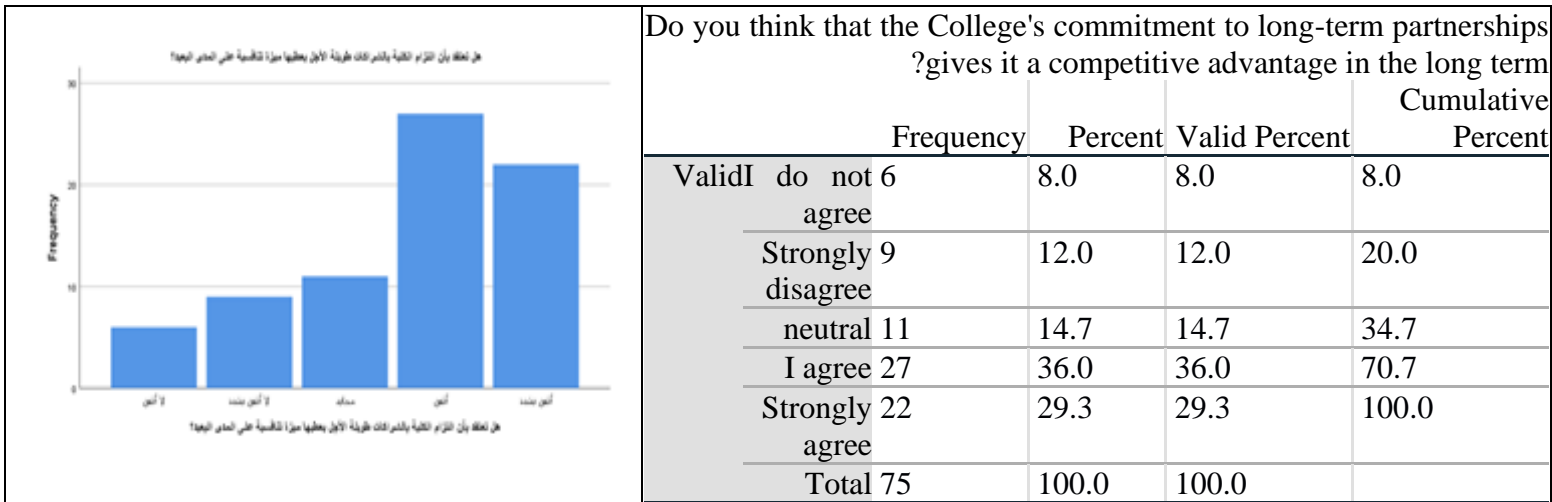
**What do you think of the idea of adopting the long-term strategic college**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	6	8.0	8.0	8.0
Strongly disagree	10	13.3	13.3	21.3
neutral	8	10.7	10.7	32.0
I agree	28	37.3	37.3	69.3
Strongly agree	23	30.7	30.7	100.0
Total	75	100.0	100.0	



**Do you believe that partnerships with suppliers and customers contribute to the college's long-term growth**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	6	8.0	8.0	8.0
Strongly disagree	7	9.3	9.3	17.3
neutral	13	17.3	17.3	34.7
I agree	24	32.0	32.0	66.7
Strongly agree	25	33.3	33.3	100.0
Total	75	100.0	100.0	



### 3- Sustainability in Human Factors Engineering:

We find that the total percentage of respondents who agreed and strongly agreed was 53.3% on the question: Do you think that the university cares about sustainability and works to implement its principles in its daily activities?

This percentage reached 61.4% when asked: Do you think that the university provides sufficient support to improve sustainability in your department and the university college in general?

This percentage reached 57.3% on the question: Do you think that employees should participate in efforts to improve sustainability in their department and the university college in general?

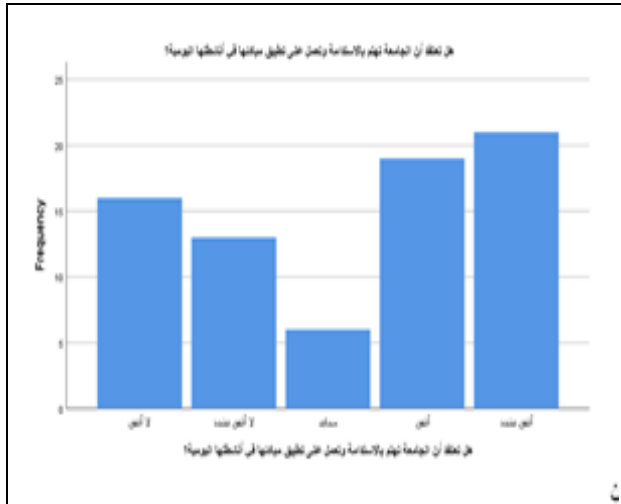
This percentage reached 58.6% on the question: Do you feel motivated to participate in the sustainability initiatives undertaken by the university?

This indicates that the college is working on the application of sustainability, and the participation of employees in efforts to improve sustainability.

Analyzing this data in the SPSS program, we find the following results:

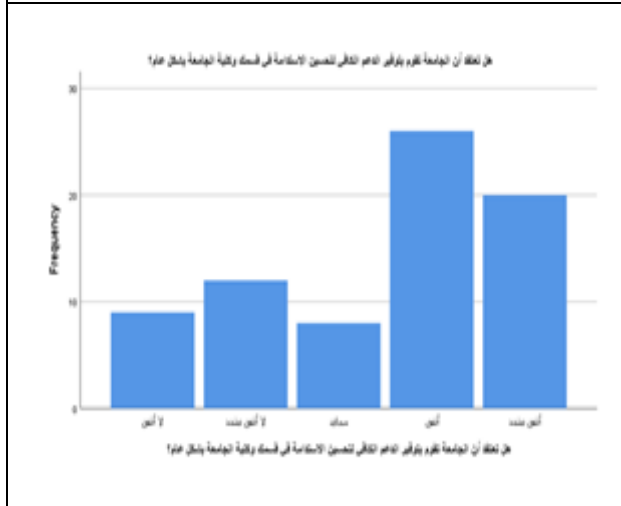
#### Statistics

	Do you think that the university cares about sustainability and applies its principles in its daily activities?	Do you think the university is providing enough support to improve sustainability in your department and the university college in general?	Do you think that staff should be involved in efforts to improve sustainability in their department and the University College in general?	Do you feel motivated to participate in the university's sustainability initiatives?
N	Valid 75 Missing 0	75	75	75
Mean	3.21	3.48	3.51	3.45
Median	4.00	4.00	4.00	4.00
Std. Deviation	1.545	1.359	1.319	1.339



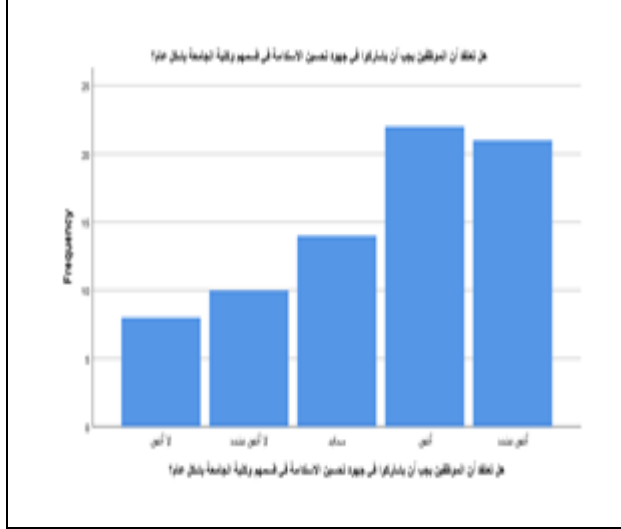
Do you think that the university cares about sustainability and applies its principles in its daily activities?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	16	21.3	21.3	21.3
Strongly disagree	13	17.3	17.3	38.7
neutral	6	8.0	8.0	46.7
I agree	19	25.3	25.3	72.0
Strongly agree	21	28.0	28.0	100.0
Total	75	100.0	100.0	



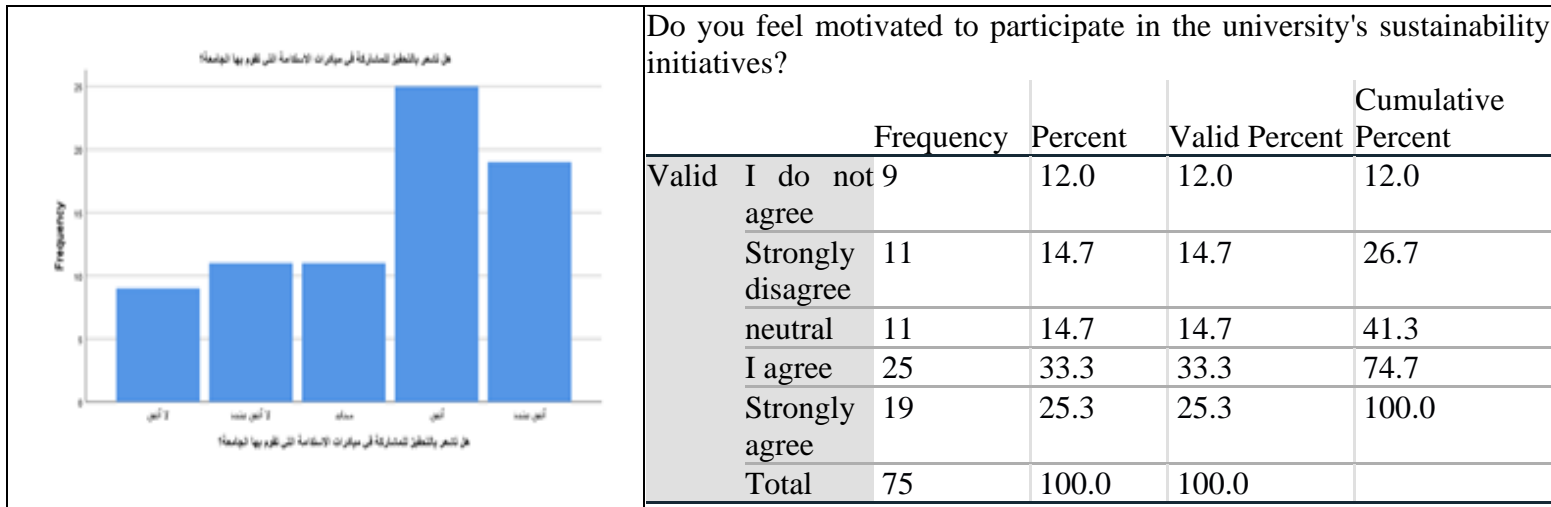
Do you think the university is providing sufficient support to improve sustainability in your department and the university college in general?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	9	12.0	12.0	12.0
Strongly disagree	12	16.0	16.0	28.0
neutral	8	10.7	10.7	38.7
I agree	26	34.7	34.7	73.3
Strongly agree	20	26.7	26.7	100.0
Total	75	100.0	100.0	



Do you believe that staff should be involved in efforts to improve sustainability in their department and the University College in general?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid I do not agree	8	10.7	10.7	10.7
Strongly disagree	10	13.3	13.3	24.0
neutral	14	18.7	18.7	42.7
I agree	22	29.3	29.3	72.0
Strongly agree	21	28.0	28.0	100.0
Total	75	100.0	100.0	



## 5: Conclusions and recommendations

### 5-1: conclusions

The study shows the importance of the role of human factors engineering in achieving high performance for institutions and organizations, as this practice is a basis for improving employee performance and increasing their productivity. Especially in light of the intense competition in the global markets. High performance can be achieved by developing internal work systems and improving the skills and competencies of employees, so that they can transform the organization's vision into reality. The research advises using the "sustainability" approach in human factors engineering, as this approach aims to maintain the high performance of the organization over time in a responsible and sustainable manner, by providing a healthy work environment and protecting workers from physical and psychological deterioration. The success of human factors engineering requires focusing on all aspects of work within the organization, especially developing effective leadership skills, preparing comprehensive training plans for employees, evaluating management policies, and converting to a 360-degree management system that includes assessing employee opinions and needs and discussing ways to improve performance. It is necessary for there to be a full commitment on the part of management and employees in achieving the goals of human factors engineering, by providing the necessary resources, unifying visions and goals, and establishing good and fruitful relations between the two parties. It also requires organizations to emphasize the engineering of human resources by discovering and developing the talents of individuals. The research concluded that human resource engineering is an efficient resource for the organization and a source of creativity, development and success, and thus achieving high performance for the organization.

The study also shows that the success of the effective application of Human Factors Engineering requires a balance between the needs of employees and the needs of the organization, and this balance must be achieved through comprehensive management of human relations within the organization.

The research indicates that the achievement of high performance systems depends on the absence of any obstacles in the work environment, by providing the necessary equipment and tools for work, in addition to creating a suitable work environment to achieve high productivity. The research recommends increasing the effective participation of employees in the decision-making process, by using the techniques of joint updating of ideas and consultation

between members of the different teams in the organization, as this can enhance transparency and trust between management and employees.

### **5-2: Discussion of linking the hypotheses of the variables X and Y with the results of the research:**

Based on the results presented in this research, we can relate the primary variable "human resource engineering factors" and the dependent variable "sustainability within high performance" to the research results as follows:

1. By analyzing the results, it was noted that many of the participants in the survey agreed on the importance of improving the college's operations and services, as well as investing it in training faculty and staff members on continuous innovation and development. These human resource engineering factors can be a contributor to enhancing sustainability.

2. In addition, it was noted that there is a high percentage of the participants who agreed that the university cares about sustainability and applies its principles in its daily activities, and provides sufficient support to improve sustainability in their department and the university college in general. These results indicate an interest and commitment on the part of the college to promote sustainability.

3. The results of the research also show that there is a high percentage of respondents who believe that employees should be involved in efforts to improve sustainability in their department and the university college in general. This indicates the importance of the employee's role in promoting sustainability and improving high performance, and is an indication of interaction and encouragement from management and colleagues to participate in sustainability efforts.

Based on these results, it can be concluded that the presence of strong engineering factors in human resources and interest in promoting sustainability can lead to the improvement of high performance in the university. HR initiatives geared towards development, training and participation in sustainability efforts may promote higher performance and positive outcomes in the context of said research.

### **5-3: Recommendations**

- 1- The necessity of emphasizing the achievement of the high performance of the organization, which has a major role in achieving the competitive advantage of the organization.
- 2- The need to attract individuals with expertise and high efficiency by providing additional advantages to the work of the organization.
- 3- Researchers and practitioners should conduct more research in order to uncover other factors that could help achieve human resource engineering in organizations.
- 4- Recruitment and training policies should be reviewed to ensure the recruitment and training of the best talent and to achieve high levels of skills and competence in the organization.
- 5- The right organizational culture should be encouraged, principles and values that promote high performance and sustainability should be defined, and all employees should be committed to them.
- 6- Increased investment in information technology and data analysis related to employees in the organization, as these techniques can help in understanding the causes of performance deterioration and provide appropriate solutions.

- 7- The work environment must be improved, psychological and social support should be provided to employees, equality in employment and promotion opportunities should be ensured, and transparency should be highlighted in relations between employees and management.
- 8- Accurate and distinct performance indicators should be defined for the organization, and strategies should be developed to continuously improve these indicators, as this could be the key to the success of human factors engineering in the organization.
- 9- The research advises the need to focus on analyzing data related to employee performance, using advanced statistical analysis techniques and artificial intelligence, as these techniques can provide valuable information about employee performance and behavior in the work environment.

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