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**Improving the Competitiveness of Egyptian Universities in Light of Ergonomics
Approach:
A Case Study of Fayoum University**

A thesis submitted to obtain PHD degree in education
(Education Administration and Policies)

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Summary of the Study

Achieving competitiveness is a strategic goal pursued by all university institutions, because their survival has become dependent on possessing competitive advantages to meet the needs of beneficiaries and the needs of society, while reconciling university resources with opportunities in the environment, to reach advanced positions in international rankings of universities. Thus, Fayoum University must realize that competitiveness is represented in the ability of excellence over competing universities in vital areas such as academic programs, characteristics and specifications of the teaching staff, libraries, halls, study and research equipment, practical training facilities for students, management style and quality systems. This is in addition to the creation of new rehabilitation systems and programs that keep pace with the various changes in the surrounding environment. It requires providing the personal, academic and administrative capabilities and skills of its employees to the maximum extent possible, which confirms the importance of constantly seeking to use modern administrative methods and approaches in their development. Ergonomics is one of these approaches that is concerned with engineering human construction according to environmental data and its variables, with real support from senior management. It is a scientific discipline that considers improving the productivity, health, and safety of all people, depending on the effective interaction between people, the technologies they use, and the environment in which they are found.

Problem the Study:

The study problem was identified in the following main question:

How can the competitiveness of Egyptian universities be improved in light of the Ergonomics Approach

The following sub-questions emerged from this main question:

- 1- What are the intellectual bases for the Ergonomics Approach (Ergonomics) through the intellectual and administrative literature?
- 2- What is the intellectual framework for competitiveness in university institutions through the intellectual and administrative literature?
- 3- What is the quantitative and qualitative analysis of the reality of the competitiveness of Fayoum University in light of the Ergonomics Approach (Ergonomics?)
- 4- What is the degree of practice of indicators of competitiveness at Fayoum University in light of the Ergonomics Approach (Ergonomics) from the point of view of the study sample?
- 5- What is the proposed scenario to improve the competitiveness of Fayoum University in light of the Ergonomics Approach (Ergonomics?)

Objectives of the Study:

The current study aimed at:

- 1- Identifying the intellectual foundations of the Ergonomics Approach (Ergonomics) by presenting the origin and development of the science of ergonomics, its concept, characteristics, goals, importance, justifications, axes,

dimensions, fields, dynamic stages, and procedures for its use in university institutions.

2- Identifying the intellectual framework of competitiveness in university institutions by presenting the concept of competitiveness, its characteristics, justifications for interest in improving it in university institutions, its importance, foundations for its construction, components and fields, methods of measurement, indicators, strategies, requirements and factors for its improvement, and obstacles to achieving it in university institutions.

3- Studying the quantitative and qualitative analysis of the reality of the competitiveness of Fayoum University in light of the Ergonomics Approach (Ergonomics)

4- Monitoring the reality of indicators of competitiveness at Fayoum University in light of the Ergonomics Approach (Ergonomics) from the point of view of the study sample.

5- Developing a proposed vision to improve the competitiveness of Fayoum University in light of the Ergonomics Approach (Ergonomics), and generalizing this vision to Egyptian universities.

Importance of the Study:

The importance of the study is represented in theoretical importance and practical importance as follows:

Theoretical Importance:

The study derived its theoretical importance from the following considerations:

1- The novelty of the field covered by the study, and the high level of interest in the competitiveness of universities at the Arab and international levels.

2- Benefiting from one of the modern approaches, which is the Ergonomics Approach, in improving the competitiveness of Egyptian universities in general and Fayoum University in particular, which contributes to solving the problems of its delay in the competition of universities.

3- Shedding light on the factors affecting the decline in the competitiveness of Egyptian universities in general and Fayoum University in particular, and their exit from the international rankings of universities.

4- In line with Egypt's Vision 2030, one of its most important goals is for at least seven Egyptian universities to become among the top 500 universities in the world by 2030. It also coincides with Egypt's vision for higher education, which stipulates improving the quality of the education system in line with international systems by supporting and developing the capabilities of the staff and the leaders, developing academic programs, improving teaching and learning methods and evaluation patterns with innovation and diversity in that. This is in addition to developing the organizational structure of higher education institutions in order to achieve flexibility, responsiveness and quality of education, which contributes to improving the competitiveness in global education reports.

Empirical Importance:

The study derived its empirical importance from the following considerations:

1- The use of Ergonomics in universities contributes to the development of university performance as it cares about human resources and improving and

preparing a work environment for them through a flexible and balanced work system that meets the needs of its human resources.

2- It can open new ideas for researchers to develop research in the field of university education competitiveness.

3- Presenting a proposed vision that could benefit educational decision makers and university leaders in improving the competitiveness of Egyptian universities and raising their rankings in international university rankings.

Limitations of the Study:

Topic Limit: The study was limited to identifying the intellectual foundations of the Ergonomics Approach (Ergonomics), and the dimensions and fields of Ergonomics were studied, especially organizational ergonomics and its dimensions represented in (individuals, the work system, the work environment). This is in addition to the intellectual framework for the competitiveness of Egyptian universities. Competitiveness indicators related to each of (human resources, university administration, physical and technological environment, research and academic performance). Quantitative and qualitative analysis of the reality of the competitiveness of Fayoum University were studied on light of organizational ergonomics dimensions.

Human Limit: It was applied to a sample of (401) university personnel: it is represented by (125) faculty members, (118) assistant staff members, and (158) administrators in Fayoum University faculties.

Time Limit: It was applied from 9/30/2022 to 11/30/2022

Spatial Limit: The study tool was applied to 19 colleges out of (19 colleges and two institutes) at Fayoum University.

Study methodology and its tools:

The current study used the descriptive approach as the main approach as it is the most suitable approach for studying educational and human problems. It is a group of procedures that integrate to describe the phenomena or the topic depending on collecting facts and data. This is in addition to completely addressing and analyzing these data to find out the significance in order to reach results or generalizations about the phenomena or the subject under study, along with using the "case study" method as one of the methods of the descriptive approach. The study was limited to "Fayoum University", and the job of the researcher allowed her to live with the reality and the case study is appropriate for the in-depth study of a subject in a social unit according to its special circumstances and under conditions and factors different from other similar cases, in order to have an integrated picture of that situation, and to reveal the problems facing Fayoum University and limiting its competitiveness, the study used a questionnaire to identify the degree of Fayoum University's practice of indicators of competitiveness and the degree of their importance in the light of the ergonomics approach of the point of view of the sample.

Terminology of the Study:

The current study dealt with the term competitiveness and the term ergonomics as follows:

- **Competitiveness:**

The competitiveness of universities is defined procedurally as: the university's ability to achieve quality in indicators related to each of its human resources, university administration, physical and technological environment, and research and academic performance by employing ergonomics to reach a privileged position in the international rankings of universities, and maintain its continuity

- **Ergonomics:**

Ergonomics is defined procedurally as: that science that seeks to improve the working conditions and environment to suit the capabilities and abilities of university employees while providing them with a safe and comfortable environment. It deals with (individuals, work system, work environment) to reach methods and approaches that enable employees of high performance, which contributes to raising the level of university performance and improving its competitiveness among universities.

Steps to proceed with the study:

The study steps are as follows:

The First Step: It includes defining the general framework of the study. It includes: the problem of the study, the objectives of the study, the importance of the study, the methodology of the study, the sources and tools of the study, the terminology of the study, the previous studies and the steps to proceed in the study. This is represented in the first chapter.

The Second Step: It includes presenting the theoretical framework of ergonomics (engineering of human activity) in terms of the origin and development of the science of ergonomics, its concept, characteristics, objectives, importance, justifications, axes, dimensions, fields, dynamics of its stages, and procedures for its use in university institutions. This is represented in the second chapter.

The Third Step: It includes presenting the conceptual framework of competitiveness in Egyptian universities, in terms of presenting the concept of competitiveness, its characteristics, justifications for interest in improving it in university institutions, its importance, the foundations for building it, its components and fields, methods of measurement, indicators, strategies, requirements for its improvement, and obstacles to achieving it in university institutions. This is in the third chapter.

The Fourth Step: It includes a study of the quantitative and qualitative analysis of the reality of competitiveness at Fayoum University in light of organizational ergonomics dimensions. This is represented in the fourth chapter.

The Fifth Step: It includes monitoring the reality of the availability of indicators of competitiveness at Fayoum University in light of the dimensions of organizational ergonomics from the point of view of the study sample. This is represented in the fifth chapter (the field study)

The Sixth Step: It includes developing a proposal to improve the competitiveness of Fayoum University in light of the ergonomics approach (engineering of human activity). This is represented in the sixth chapter.

Results of the Study:

The study concluded that the reality of competitiveness indicators regarding the degree of importance:

-All indicators of competitiveness related to (human resources, university administration, physical and technological environment, research and academic performance) in light of organizational ergonomics dimensions (individuals, work system, work environment) came with a high degree and a relative weight between (2.34: 3) from the point of view of the study sample.

-There are no statistically significant differences at the level of significance (0.01) or at the level of significance (0.05) in the dimensions of a questionnaire about the reality of indicators of competitiveness at Fayoum University in light of the dimensions of organizational ergonomics according to the variables of the study (current job - type of college - accreditation status)

In terms of the degree of practice, it was found that:

1- There are no statistically significant differences at the level of significance (0.01) or at the level of significance (0.05) in the dimensions of a questionnaire about the reality of indicators of competitiveness at Fayoum University in light of organizational ergonomics dimensions according to the following study variables:

A- The job variable (faculty member - assistant staff member - administrative) for the first axis of competitiveness indicators (human resources), and for the third axis of competitiveness indicators (university administration)

B - The variable of the type of college (theoretical - practical) in relation to the second axis of indicators of competitiveness (university administration)

C - The variable of accreditation status (accredited - not accredited) for the four axes of indicators of competitiveness (human resources - university administration - the physical and technological environment - and research and academic performance)

2- There are statistically significant differences at the level of significance (0.01) or at the level of significance (0.05) in the dimensions of a questionnaire about the reality of indicators of competitiveness at Fayoum University in light of organizational ergonomics dimensions according to the following study variables:

A- The job variable (faculty member - assistant staff member - administrative) for the second axis of competitiveness indicators (university administration), and for the fourth axis of competitiveness indicators (research and academic performance), and the total sum of practice in favor of the administrator.

B- The college type variable (theoretical - practical) for the first, third, and fourth axis of competitiveness indicators (human resources - physical and technological environment - research and academic performance) in favor of practical colleges.

3- The degree of practicing indicators of competitiveness (human resources, university administration, physical and technological environment, and research and academic performance) at Fayoum University in light of organizational ergonomics dimensions (individuals, work system, work environment) is medium, as the relative weight of the total sum of its axes is (1.69), which is medium relative weight, as the relative weight of the first axis:

human resources (1.69), which is a medium relative weight. The relative weight of the second axis: university administration (1.63), which is a low relative weight, and the relative weight of the third axis: physical and technological environment (1.68), which is an average relative weight, and the relative weight of the fourth axis: research and academic performance (1.74), which is a medium relative weight.