

## **Proposed vision to raising the efficiency of design education method of metal construction by using an innovative methodology for blended learning**

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### **Introduction:**

The recent developments in the field of communications and information technology have had a great impact on the design and delivery of educational programs in higher education, and the progress in the technology of education has had a positive effect on the effective communication between the teacher and the learner. This has facilitated the teacher in many ways to communicate information and skills in various ways and methods enrich the learning process and increase Of the effectiveness and impact, as many modern educational trends recommend the need to find the best ways and means to provide an interactive learning environment suitable to attract the attention of students, and encourage them to learn, and exchange of views and dialogue

Blended learning is the result of the spread of e-learning, which harnesses the latest technology and equipment in the learning process, incorporating traditional means and procedures for bilateral benefit, from the use of electronic presentation tools to traditional classroom lessons and the use of multimedia in quarterly education processes Self-education, and virtual communication that allows students to attend and interact with lectures that may be established in other countries through interactive Internet technologies. Integrated learning is an educational mode in which different means of communication are used together to teach a particular subject. These may include a combination of direct encounter in the lecture hall, online communication, and self-learning. In the field of teaching the design of metal structures, there is an urgent need in this age to change the personality of the student and turn it into a student interactive and permanent search for information, not only a recipient of information, but a positive participant and a manufacturer of experience, and seeking information and knowledge by all means possible, using a set of procedures Scientific, such as observation, understanding, analysis, composition, measurement, reading data, and conclusion, under the supervision of the teaching staff that directs and evaluates it.

Education is the mainstay of the progress of peoples and nations, so educational institutions seek to develop their education, and in the wake of rapid change and rapid knowledge growth, traditional teaching methods are no longer sufficient for education in the computer age and the Internet. Contemporary technological and technological developments It has

become important to develop metal construction design education from traditional to modern methods that are compatible with information technology in all academic and technical aspects, Especially blended learning Method ,This development has led to the need for faculty members to acquire new skills and capabilities that enable them to employ e-learning techniques and effectively use them with traditional education in design education by developing a proposed methodology for that approach

### **Research problem:**

There is growing interest in the use of Blended learning in educational systems in Egypt, as one of the images used in e-learning, in addition to being a unique educational pattern complementing the process of traditional education with a contemporary vision and therefore the research problem lies in the urgent need to employ this approach in the teaching metal structures design, and the quest to codify the integration of modern means and their interaction with the usual educational methods, to provide an effective and innovative style of design education, in accordance with the characteristics of the students and their needs and teaching aids and the content of the study, Of, and in control and allow the development of the educational process and the measurement and evaluation of performance and output periodically and to develop appropriate plans for improvement.

### **Research Objective:**

The aim of this research is to proposed vision To raising the efficiency of design education method of metal construction by Using an innovative methodology for blended learning

### **Research Methodology:**

The research follows the descriptive approach.

### **The research studied the following topics: -**

To achieve the research objective, the study is based on the following topics:

#### **1- Teaching the design of metal structures between the traditional and e-learning method:-**

This section presents design education in general, including the design of metal structures, differs in its concept from the teaching methods of some other sciences. It requires a specific method of training students on how to create designs that achieve the purpose for which they were created. It is a solution to a problem. It is a process that prepares and prepares future designers with appropriate skills Design education at this stage is concerned with both knowledge and innovation and the ability to implement. This is why design students need to integrate design research with their innovative design processes.

It is therefore possible to say that the design in the field of light metal construction is a clear process with a clear sequence to meet the different purposes of solving problems with functional, environmental, structural, aesthetic, economic, etc. It aims to find innovative solutions through the introduction of alternatives, analysis and evaluation, And a logical impact on the abilities of the designer knowledge, skills and innovation

Traditional and electronic methods are used in teaching design as methodologies to achieve the effective construction of the creative personality and to develop the creative abilities and skills of the design students. This theme then presents the differences between the teaching of design in the traditional style and the teaching of design in electronic form, In order to demonstrate the importance of blended them in the blended learning method

#### **A - Employing the traditional method in teaching the design of metal structures**

In this type of education, many schools and faculties of design are used as a central place for learning, a place where students gather and work under the supervision and follow-up of their

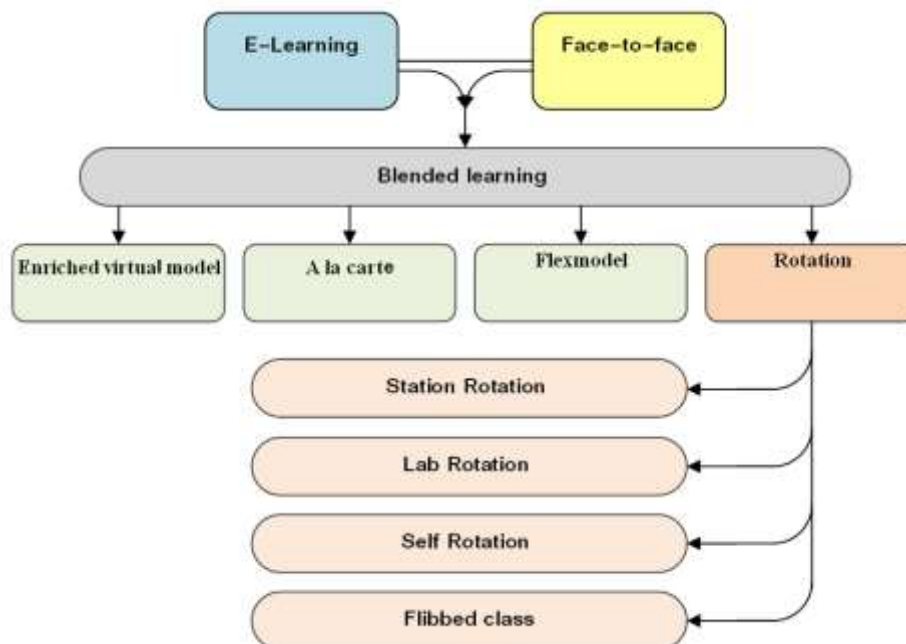
teachers, as well as some of the designers of the actual labor market who are interested in the field of education, The studio is a place for the process of teaching in practice, so that students face a series of problems to solve it, and this works to teach design through practice (practical) rather than study and analysis only theoretically through annotations written or picture, as it is difficult to learn design without practitioner Real.

### **B- Employing the e-learning in the design of metal structures**

The use of e-learning in the field of design education is an innovative learning method for communicating information about light metal design instruction in the shortest time, effortless and more useful through a variety of electronic inputs such as multimedia use of written texts, Audio and interactive exercises through the Internet or through CDs or any digital image, in time and space and at a speed that suits each student according to its absorptive capacity.

### **2- The use of blended learning in the design of metal structures:-**

This section presents the increasing number of students and the short time of lectures, there is an urgent need to keep abreast of the increasing sophistication of education systems while maintaining the characteristics of design education in an effective manner as a face-to-face process. It should be noted here that the process of merging or mixing different educational methods is not done in a random, unorganized manner, but rather in a systematic and homogeneous manner, which is governed by several criteria related to the requirements of the educational situation, which some academics prefer To the single electronic system - and of course the traditional - where the following diagram illustrates the models of employment of integrated education.



**A diagram illustrating the models of employment blended learning Into the educational Process**

### **3- proposed methodology for blended learning to teach the design of lightweight metal construction:-**

The proposed methodology reflects the importance of implementing blended learning standards and ensuring quality in the design of metal structures. The methodology involves a number of stages, which include a number of rules and procedures that cover educational objectives, teaching methods and activities, educational content, Infrastructure, and material capabilities, and to formalize the role of both students and faculty members in an attractive interactive learning environment. The proposed methodology therefore works to establish and integrate

modern digital techniques into the traditional teaching styles of education The core of metal structures, in order to provide built-in approach to achieving educational goals, filling the needs of students, community service, and to catch up with scientific development in the areas of metal structures design.

### **Research Results :**

- 1 - The importance of blended learning for the design of metal structures in the ability to integrate the forms of traditional classroom education of design and e - learning of the design of multiple types in and out of classrooms, in order to help the student to learn easily with the possibility of different assessment methods to achieve the learning outcomes targeted.
- 2- The proposed educational methodology reflects the importance of implementing the blended learning standards and ensuring its quality in the design of metal structures. This methodology includes a set of rules and procedures that affect educational objectives, teaching methods and activities, educational content, how to employ e-learning technology, infrastructure, , And legalize the role of both students and faculty members in an attractive interactive learning environment.
- 3- The proposed educational methodology is based on the sequential gradation of eight basic stages, beginning with the monitoring of equipment and capabilities, followed by needs analysis, then the objectives of development, then using the blended learning method, choosing the suitable educational platform, preparing the implementation plan and evaluating the methodology.
- 4- The application of the e-learning methodology, which is integrated in the field of mineral design, contributes greatly to reducing the efforts and times of education within the traditional classroom. It allows continuous development of goals, activities and educational contents. It provides continuous and varied educational resources available to students at all times.

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