Implementing a proposed methodology for blended learning To raising the efficiency of lightwieght metal construction design education

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Introduction:

In terms of investment in education, upgrading the scientific and skill capabilities of the individual, and the shift from receiving to continuous learning, all of them contribute positively to improving the quality of life and the development of society, while at the same time keeping abreast with successive scientific and technological developments. The use of modern communication mechanisms of networks and multiple media in the transfer of knowledge and skills of the learner in the shortest time and less effort and greater benefit, synchronously or asynchronously. Therefore, it is a good way, if best employed, to support the process of teaching and learning and transform it from the stage of indoctrination to the stage of creativity, interaction and skills development, and it is also a tool to consolidate the concept of self-education.

Based on the fact that the design is a human activity that combines creative thinking with practical work, and its effects appear in most products used by man on a daily basis, it represents the essence of the educational process that is employed to prepare a distinguished designer capable of innovation and development in his specialty. Is one of the important areas that reflect the previous philosophical vision, as it combines the theoretical and technical aspects, in addition to that design education is one of the most related areas of technological developments in general and information technology in particular, as well as its correlation and impact on the variable Social, cultural and economic environments, which usually have a bearing on the nature of the content and the methods of education and assessment that are being used.

Research problem:

The need to apply this methodology in the teaching of the design of metal structures design, and to seek to codify the blended of modern means and their interaction with traditional methods, to provide an appropriate method of design education process information and technology, and corresponds to the characteristics of students and their needs and available educational means and content, In order to control and develop the educational process and

measuring and evaluation of performance and outputs periodically and develop appropriate improvement plans

Research Objective:

The aim of this research is to applying a proposed methodology for blended learning
To raising the efficiency of lightwieght metal construction design education

Research Methodology:

The research follows the descriptive and experimental approach.

The research studied the following topics: -

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

1-Proposed methodology for blended learning to teach the design of lightwieght metal construction:-

This section presents An innovative and effective approach to using blended learning method requires developers of teaching units to teach the design of light metal structures to implement these modules in a systematic and blended learning process, starting with monitoring available resources and learning the characteristics of the learners. Through a thorough study of a combination of experiences on the employment blended education at the international and regional levels, it has been possible to reach basic steps that are important in the design education methodology, as follows:

1 - Analysis of the characteristics of learners: to identify their experiences and knowledge and previous information associated with the content of education, and the educational objectives of the course, and then identify a series of electronic lessons for the process of self-learning for each student studying.

2 - Analysis of scientific content: The faculty member determines the area of the course, and what he taught in it to determine the educational objectives and educational contents of the course, and divided into two parts according to the objectives, part is submitted electronically through the Internet or through CD and part is presented in the classroom.

3- The implementation of the program: through the presentation methods of the content in the blended learning environment and the weekly plan used, while providing the methodology model e-learning activities and follow-up to students in a synchronous manner such as virtual classes and voice chat and other activities, and non-synchronized, such as e-mail forums, With multiple sources of learning with more than one image such as videos of some theoretical lectures, educational sites, text files, etc., which can be followed by students online, with the possibility of making announcements about the dates of theoretical lectures in college, with the possibility of S Use an electronic learning management system.

4-Evaluation stage: Through a variety of evaluation methods, in order to ensure that the educational program passes through the identification of the acquired knowledge, through electronic and descriptive tests, the process of evaluation progress and follow-up and the final evaluation process, to measure the achievement of the objectives at the end of the specified period of the program Educational.

5 - feedback: the existence of feedback allows to achieve further development in the methodology when applied again, with the work of corrective measures.

2- Application of the proposed methodology for blended learning to teach the design of lightwieght metal construction:-

This section presents the general requirements and dimensions of the suggested methodology for design education in the field of light metal constructions and all factors that are directly related to its success like:

1- Monitor and analyze the infrastructure
2- Monitoring and analyzing the needs of the beneficiaries
3- Identify the desired objectives of student-targeted learning and development
4- Employ the blended learning into the proposed methodology
5- Choose the educational platform
6- Preparation of the operational plan (actual practice)

This section ends with the development of the proposed methodology and explaining its steps

3- Indicators on the effectiveness of the proposed methodology for blended learning to teach the design of lightwieght metal construction:-

After the preparation of the proposed methodology blended learning education and after the design of the weekly plan, and then applied to the students of the third division in the design of the construction of metal (level III) during the first semester of 2018/2019 comes the stage of evaluating the results and identify the evidence and indications and indicators that show Effectiveness of the proposed methodology. In this regard, a periodic and final evaluation of the design project was carried out to ascertain the effectiveness of the methodology used. A number of points will be used as indicators to measure the effectiveness of the methodology such as student achievement file, tests and effectiveness of participation, accuracy of planning, - the results of the evaluation of the project - the student questionnaire), and these indicators and results are expected to reflect negatively or positively on the effectiveness of the learning platform used (the learning management system), the efficiency of the methods of design education used, the efficiency of assessment methods used sources of teaching and learning. The set of directories and indicators can be illustrated as follows**:**

1-   Results of the evaluation as an indicator of judging the effectiveness of the proposed methodology.

2-   Completion rates of the design project as an indicator of judging the effectiveness of the proposed methodology.

3-   Authenticity of creative ideas and project design outputs as an indicator of judging the effectiveness of the proposed methodology.

4-   A refresher database of design education resources is provided as an indicator to judge the effectiveness of the proposed methodology

Models of student work

Research Results :

1 - Reduce the effort within the traditional classroom through the use of blended learning with the non-repetition of the same explanation of the particles when there is more than one group in a single batch, while providing the greatest amount of education and appropriate to fit with the possibilities of students in terms of flexibility and the possibility of repetition and explanation of more than one method , Where there are differences between the student demand for understanding and comprehension capabilities.

2. The proposed methodology for blended learning has proved to be very effective in dealing with the large number of students who are coming to the department with limited capacity. It also facilitates the process of teaching design in explanation, deliberation and the provision of renewable sources of information.

3 - Continuous interaction at any time and place between the faculty member and student, through the use of the proposed methodology, lead to increased effectiveness of cognitive and skill learning.

4 - The use of inverted chapter in the dissemination of the interaction between the student and the faculty member within the classroom, in addition to helping students defaulting study, the student in reverse education watching the video educational at home, and writes questions that would like to get an answer from a member of the faculty.

5- The proposed methodology provides a digital achievement record for the student throughout his / her period of study at the college, and shall be considered a reference when necessary for any job requiring the administration of the college to employ some of its graduates

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