Transforming the methods of teaching traditional scientific courses for distance education ... (Illumination as an applied model)

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An introduction:

Distance education has become a reality for hundreds of millions of students all over the world under these exceptional circumstances that have occurred in the country, which forced educational systems in some societies to respond quickly and adapt to it. The systems that manage the distance education process vary between LMS administrative systems, which enable the educational institution to manage records and other administrative aspects, and applications that provide CMS content in its various forms (texts, images, presentations, video, audio ...), and social applications for interaction over the network As the virtual classroom "Virtual Classroom", it may be enterprise applications or commercial applications available to everyone, which the organization selects based on its own needs, such as google classroom, Microsoft teams, etc., and perhaps the last style is the most common in our homes currently, I mean social applications and virtual classrooms. In this paper, we will talk more clearly about these systems.

Virtual classes, so-called web classes, or fictional classes, are an environment for direct or indirect learning. This environment can be web-based and can also be accessed through a portal or based on programs that require downloading and installation. In the regular classroom, the student in the virtual classroom can participate in direct learning, which means that the student and the teacher go to the virtual classroom environment at the same time, and the explosion of information is a factor contributing to the development of the virtual classroom, and the information is no longer an important goal such as how to communicate and benefit from it.

Both the subject professor and the female students faced some problems that were rectified so as not to allow any influence on the material's output ... The research dealt with the advantages and disadvantages of these virtual classes, and an experiment was conducted on students of the lighting subject at Taiba University for the second semester 2019/2020, to make a comparison between The method of teaching in the lecture hall and the method of distance teaching, in order to assess the situation in each case, and the researcher presented methods and methods of teaching that were carried out through distance education in terms of theoretical and practical study. The results of the experiment were analyzed in the light of the students 'work and the student's satisfaction was measured using a questionnaire form, to record the results of the research. And to suggest some recommendations regarding the lighting approach and how to deal with it smoothly through traditional or distance education.

Research problem:

The research problem lies in how to deal with students in the distance education system, and solve the obstacles that students faced in order to enable them to understand the course and provide outputs for lighting that are no less good than in the case of traditional education.

The importance of the research:

The importance of the research lies in finding some solutions to the problems facing students and the teacher in the distance education process, through the application of educational technology, and everything that is modern in the world of software, the application of virtual reality in the subject of lighting, and knowledge of the extent of students' understanding of it. Through the outputs, and through the questionnaire attached to the research.

Research Aims:

- This study aims to evaluate the distance education system through the illumination course as it contains two parts (theoretical and practical together), by comparing it with the traditional method of education, and by addressing the problems that we encountered during this period, and how these problems were overcome by assessing the current situation of the situation Future plan, and alternative solutions for teaching lighting.

And the inclusion of distance education as an optional method in later courses as an alternative solution in some emergency cases, through the development of a flexible plan that allows dealing in both cases

Key Words

- Google Classroom - Microsoft classroom - Illuminance - DIALUX evo - working plane

Research Methodology:

The research is based on the following approaches:

Descriptive approach through theoretical study by research,

The experiment was also based on the experimental approach and the experiment was conducted on female students of the lighting subject at the University of Taiba for the second semester 2019/2020, and the results of the experiment were analyzed in the light of the students' work and the students 'satisfaction was measured using a questionnaire form.

The inductive approach is based on the findings of the research and recommendations, through the data and specifications, the various advantages and disadvantages of the lighting material plan, and its development to be compatible with the distance education system.

Search Limits:

Human Limits: This study was limited to students of the College of Family Sciences, Department of Interior Design

Spatial boundaries: This study was limited to students of the College of Family Sciences, Department of Interior Design, Taibah University (Madinah)

Temporal limits: The study was conducted during the second semester of the year 2019/2020.

Search Tools:

First: The observation: To observe the students 'work and follow up the stages of their implementation of the practical aspect of the decision with the lighting material

Second: Female Student Results: The average of female students 'results for the people combined

Third: The table of performance indicators for the people is compiled

Fourth: Questionnaire card: to measure female students 'satisfaction with teaching the course remotely and their utilization of the scientific material

Research sample: The research sample consisted of all students enrolled in the lighting subject, their total number. 104 students, distributed over six classes, average each class, approximately 18 students.

Research Assumes:

Developing solutions to the problems that faced each of the students and the subject teacher, enabling both of them to deal smoothly with the lighting curriculum during virtual education.

- Presenting programs that can be used in this curriculum in order to enable the student to present his proposals clearly

- The use of digital technology to achieve the objectives of the curriculum, and to keep pace with the development of technology

Search Procedures:

This study was limited to the lighting course, which is taught at Taibah University, Department of Interior Design.

The researcher took the following procedures:

1. The research began with the theoretical study of the role of modern technology in education and its impact on the distance education system

 And know what distance education and virtual classes are

2. Determination of the subject to be researched from the study materials provided by the Interior Design Department at the sixth level in the second semester of 2019/2020, which is the lighting subject.

3.- The lighting material contains two parts:

A - a theoretical part, and it is taught during the theoretical lecture times assigned to it, and a total of 15 hours

B - a practical part and is taught during the practical lecture times assigned to it, totaling 30 hours

4.- The outputs in the lighting course were divided into two parts, one part that was accomplished in the traditional way, and another through virtual classes

5.-Make a comparison between the outputs by taking random samples from the two models.

6. Conducting a questionnaire to measure the satisfaction of students who have studied the subject of lighting, and through it the educational process was evaluated through the distance education system, and the results of the research were made.

The first part of the research is entitled: **The role of modern technology in education and its impact on the distance education system**

In it, I dealt with the role of modern technology in the development of education and the importance of its application in education, the concept of computer simulation and its importance in education, and also addressed virtual classes and learning management systems in their three forms, namely:

a. CMS Content Management System

B. LMS Learning Management System

T. LcMS Learning and Content Management System

She also talked about the advantages and disadvantages of these systems, examples of these systems ... and the most important possibilities provided by the virtual classroom.

The second part of this study is: **a comparison between the teaching method in the lecture hall and the teaching method remotely through virtual classes through the subject of lighting (an analytical study)**

This study aims to make a comparison on the ground - through the lighting course - between the distance education system and the traditional system, and the exposure to the problems that we encountered during this period, and how these problems were overcome. I presented a description of the course and its objectives, and after that the teaching methods that were presented were presented. Been taken up

Teaching methods covered during the semester:

Teaching through classrooms: and its duration was seven weeks .... At the beginning**,** the plan was presented to the students and discussed, and what is required to be achieved at the end of the semester, which is required to be completed and delivered throughout the semester, and the proposed grades are distributed during the semester, knowing that the plan's duration is fifteen weeks.

The second half of the semester, and the application of the distance education system: Starting from the eighth week, the distance education system has been implemented through learning management systems, through the Blackboard system.

The theoretical part of the article

The theoretical material was covered in the lecture halls for the first six weeks in an explanatory manner, and PowerPoint presentations for clarification and question and answer.

As for the lectures that took place through virtual classes, the good learning management system provides an easy-to-use interface as we mentioned earlier, with the ability to download files and images, and accordingly, all previous lectures have been uploaded, and every new lecture every week,

I made an average of people scores for each of (the remote test and the traditional test), and compared the average of the two results.

The practical lectures, also divided into two parts:

The stage of education through the classrooms: It contained three parts:

The first stage: It is training to manually distribute the lighting units on a plan of a space based on what I absorbed through the theoretical lecture, and here I relied on the method of brainstorming, which is an educational method that can be used with students as it unleashes thinking freely about an issue or problem What, looking for the largest possible number of possible solutions, ideas flow abundantly and without stopping, then searching among the group of these ideas that were generated on the best idea

The second stage: what is required here is a research from each group on the basics of lighting in a vacuum, through choosing a space and studying how lighting units are distributed over it.

The third stage: the use of simulation through the application of virtual reality, and this was done through the use of the DIALux Evo program, and this stage began in the fifth week of the study, and was then completed through virtual classes starting from the eighth week, the researcher presented some models For female students' work at this stage

The program was explained through the classroom display screens, or through computer labs, but in the case of distance education ... it is possible to use screen sharing to see the details and work steps

The practical part was addressed through distance education: The course plan at this time was taken up by the researcher as follows:

1- Explain what is left of the points from the Delux Evo program, and follow up on what has been done from the first project through the blackboard, through virtual classes and create a desktop post and through this, students clearly see everything that is done on the teacher's device, and follow the steps Explanation ...

2- Application of what has been studied from the program by achieving the following:

- Choosing a space other than the research space and distributing the furniture in the space appropriately, with the choice of appropriate materials and colors

- Implementing a proposal to distribute lighting different from the previous proposals, applying the criteria mentioned in the previous research with determining the level of lighting and the work surface.

- To propose two or more devices suitable for the project through one of the commercial websites in the program (DIALux evo), with the characteristics of each device shown.

- Activate natural lighting, taking into account the reduction of glare, if any, by using interior curtains.

- Show the above in the poster size A2, and submit it in PDF format, on the blackboard page.

The follow-up was carried out over three weeks through the virtual classes, and at the time of the practical lecture, and the amendment to the drawings is done through the graphic interface, the follow-ups are evaluated weekly with grades to motivate the students to follow up, and make adjustments if any .. The students were followed up through the virtual classes, and there Models for each stage of delivery

Problems that occurred during virtual classes, and solutions taken

- In the first week, some malfunctions occurred due to the novelty of dealing with this new system and its complete application in teaching the curriculum all of a sudden .... but the students were compensated for the theoretical lectures by registering them and leaving them in the course lessons for reference at any time

- There are some students who were unable to attend some of the lectures due to some problems in the Internet, or because of a malfunction in the computer ... The students were followed up in the practical part at additional times through the TMS.

- There are some students who did not understand the applied (practical) part of the curriculum through virtual classes, and did not prefer it because of the slow network or a defect in the blackboard ..

Network slowness, which led to additional wasted time, and this was cumbersome for both parties

The last part is entitled: - **Did the virtual classes fulfill the same requirements in terms of outputs, and achieve both cognitive and cognitive aspects of the students in the subject of lighting?**

To know the extent to which distance education achieves the objectives of the subject, can it be applied later as an educational system, and to what extent it can be applied, and this was done through three steps,

1- Presentation of the students 'results. The students' achievement level was verified by presenting it to a number of arbitrators through sessions on the zoom page or the blackboard.

2- Making a questionnaire about the course content - subject teacher - teaching and learning methods - time and timing of lectures - assessment and evaluation methods - material capabilities and available classrooms

3- Conducting a questionnaire for female students who studied lighting in the 2019-2020 academic year, and 44 students participated in responding to this questionnaire

Analyzing students 'results, a table of performance indicators, and questionnaire results

The educational system suddenly changed and turned to the distance education system, and this sudden change must have affected the progress of the educational process, but by trying to remedy the situation this was compensated for a number of additional hours, an attempt to make the students understand all the objectives of the course ... and through what we have Outputs of the subject, and through the results of students and questionnaires also, the researcher concluded:

Knowledge field and skills: by looking at previous investigators ... (theoretical and practical score table, and the result of performance indicators and the previous questionnaire, we find that:

- The average total score of the female students in the test is 9.2 out of ten scores by the traditional method, while the overall average of the grades is 8.9 out of ten scores also through the remote test (blackboard) ...

-. 90.4% of the students obtained an A + -A rating, which means that the students achieved the knowledge materials in the course

Through the performance indicators we find that

- The results of the questionnaire were mostly strongly agreed - and agreed, and the results of the students were confirmed for this questionnaire.

-75.7% of female students (Strongly agree and agree) This course helped me improve my ability to think and solve problems

Instead of just saving the information.

-77% of students are between (Strongly agree and agree) This course helped me improve my skills in working as a member of a team.

-75.7% of female students (strongly agree and agree) This course helped me improve my ability to write and communicate effectively.

Through the questionnaire

- By combining a percentage of I agree or disagree- In terms of knowledge and skills, we find that the percentage of female students who are familiar with the different types of lighting units is 79.5%,

- The percentage of female students who learned about the technical and technical aspects of the different light effects of the indoor space is 70.4%.

The following percentage of female students can determine the relationship of color to light and the effect of each of them on the other 56.8%.

- The percentage of students who learned about the aesthetic and psychological aspects of the different light effects of the inner space is 75%.

- The percentage of female students who can calculate the necessary lighting in an indoor space using a computer is 72.7%.

- The percentage of female students who can design the appropriate lighting distribution within the architectural space is 70.4%.
- The percentage of female students who can apply communication and information technology (library and computer) is 100%, as the project and the transactions between the student and the subject teacher, and references .... All this was done through the computer and the electronic library.

Regarding competencies: The students work in a group team through their participation with their colleagues in the research work, and they also respond to the exchange of dialogue and criticism on scientific methods through virtual classes, and by discussing the project before the jury, it accepts the responsibility of managing a team through collecting information and project work

Research Results
- The result is close to the average score of the students' scores in the traditional test and the remote test (blackboard) ... and it is (9.2: 8.9), and this means flexibility in choosing the exam method later.
- 50% of female students agree to study the course through virtual classes, while 77.2% agree to merging in education (between classrooms and virtual classes), based on the female students 'questionnaire, the attached result, and also the table of indicators.
- 77.3% of female students prefer to study theoretical courses through virtual classes.
- Based on the outputs attached to the research, it is possible to reach satisfactory results from the educational outcomes of the subject when solving problems that encounter both the teacher and the learner through distance education.
Applying a distance education system could facilitate many social problems for some students.
- Knowing the capabilities of the computer and its latest applications can facilitate the instruction process.
- The simulation method in the field of interior design can save a lot of effort and time, and produce many distinct and varied designs.
- It is important to implement the e-learning management system in universities, because it saves time and effort, both in terms of administration or education
- Technological development that can be used to adapt some practical materials to fit the distance education system.

Recommendations
The researcher recommends applying the distance education system in the subject of lighting later as an optional method in the education system of some universities.
- I also recommend the application of the method of integration in education between classrooms and virtual classrooms in the subject of lighting, as the outputs and questionnaires proved the students 'satisfaction with this proposal.
Encouraging all male and female students to take courses in the applications of learning management systems in anticipation of any emergency
Solving Internet problems from the competent authorities.
Constant access to the latest applications that facilitate the understanding and completion of the educational process with clarity and ease

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