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Activating E-learning in Teaching Physics and Combining Simultaneous and Traditional Education in Academic Achievement

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Abstract:
The advent of COVID-19 has forced educational institutions all over the world and especially Iraq to shift all strategies from face-to-face platforms to online platforms for the safety of students, teachers and all other staff. However, this is not the case in educational institutions only because other governmental and non-governmental institutions are affected in the same way all over the world.

The aim of this research is to understand the behavior of students due to the sudden shift towards the experience of online education in the school environment and to measure their preference either on the classroom education system or on the Internet by providing an understanding of Simultaneous a Simultaneous learning and its implementation in teaching physics subject. The research collected data through an online questionnaire. The Internet included 70 middle school, preparatory and university students, which helped the researcher draw the discussion and the conclusion with mentioning some recommendations. The research proves that the vast majority of students are willing to combine in-class and online learning platforms and believe that they can do well by adopting this new platform of the online education system.

Keywords: E-learning, Combining Simultaneous and Traditional E-Learning, Physics.

The Aim of the Study

This study aimed to identify the role that e-learning using the Internet can contribute to increasing student achievement of physics from the point of view of intermediate, preparatory and university students.

Especially that the use of e-learning in addition to in-class education has led to raising the level of academic achievement for students and the need to work to increase the dissemination of the concept and culture of using e-learning in all educational institutions in Iraq through the establishment of training courses and the issuance of brochures explaining the most important methods and methods used in e-learning and how to achieve the best Possible benefit from it, in addition to providing all the capabilities and needs in order to implement the methods and methods of e-learning in all educational institutions, and work to increase interest in the quality of the educational process in order to achieve the educational goals that Iraq seeks to achieve. And the necessity of merging between Simultaneous e-learning and traditional A Simultaneous education,

and academics and those interested in conducting many researches and studies related to the application of e-learning methods in educational institutions in Iraq in order to face any problems or obstacles that may hinder its application.

Introduction

Learning is the use of digital media to accommodate the learning process in the classroom before the Corona pandemic, either learning

E-learning is a complementary means that works only as a supplement to the learning process in the classroom after the Corona pandemic, e-learning has become a necessity to continue providing the educational process. The limited digitalization in educational institutions and the relatively unstable state of Internet connection, and the availability of media to conduct e-learning significantly among students of different economic levels. They are within the limits of the classroom, and they are matters that must be taken into account in e-learning (Ismail, 2022: 156-158) .

Simply, computers began to be used as a way to transmit and act upon visually rendered material with instructions. Moreover, e-learning continues to evolve along with the development of technology in the field of information and communication technology until many online applications appear that can be accessed through devices, be it smart phones, laptops, tablets or PCs (Hermawan, 2021: 86-95).

We live in a knowledge economy, and the knowledge economy, as Joseph Schumpeter put it, is a creative destructive force. Knowledge economies are stimulated and propelled by creativity and ingenuity. Knowledge society schools must create these qualities, otherwise their people and countries will be left behind. They stimulate growth and prosperity, but their relentless pursuit of profit and self-interest strains and fragments the social system along with other public institutions. Our schools must also foster compassion, community and a global identity that will offset the most devastating effects of the knowledge economy. The knowledge economy primarily serves the private good and this society includes the common good as well.

Schools serve today and shape a world in which there can be great economic opportunity and improvement if people can learn to work with more flexibility, invest in their future financial security, reskill or relocating them as the economy changes around them, valuing work creatively and collaboratively (Hargreaves, 2003).

A critical investigation and analysis has been conducted on work versus home learning during COVID-19. Through a small research targeting parents only who have at least one child who goes to school to take their point of view on how they see the concept of working from home versus learning from home, the results indicated that 36 participating parents often prefer working from home if possible, but the same parent does not He wants his child to learn with this and research shows that most parents believe that remote work leads to higher productivity and leads to cost-effectiveness and distance learning leads to a decline in creativity (Munna, et al, 2020 : 23-29)

E-learning has become a necessity in higher education institutions and is being deployed in educational institutions all over the world. According to some distinguished researchers, the Internet is an ideal educational tool that provides flexibility and benefit to learners at the same time and provides endless opportunities for innovative teaching. Student participation.

The three requirements necessary for the success of effective e-learning:

- Technology
- Characteristics of the teacher
- Student characteristics

Technology is a tool for improving education, and with technology support, teaching and learning becomes easier and more effective. Today, technology plays an important role in school classrooms: devices such as computers distribute information and help students acquire knowledge and skills, as well as create opportunities for cultural and experiential learning, and technology needs improvement; However, it is the teacher's characteristics and technology savvy that are most important in terms of having a successful learning experience. Teachers who are motivated and have an encouraging attitude towards e-learning technology will enable a positive educational outcome. They state that "it is critical that the teacher has good control over technology and be able to perform basic problem-solving tasks. The teacher must have the ability to motivate students, show empathy, solve emergency problems and respond to emails quickly." A positive attitude to e-learning depends on How confident they feel about the technology If one of the requirements is the ability to troubleshoot basic problems in the E-learning system.

Either student characteristics such as intelligence, motivation and computer experience are necessary for the success of online education and there must be structured training for students (Islam, et al, 2015: 102-112).

E-learning is a method of education using modern communication mechanisms from a computer and its networks and multimedia such as sound, image, graphics, search mechanisms, and electronic libraries, as well as whether it is remotely or in the classroom. In the shortest time, the least effort and the greatest benefit.

It can also be defined as the use of technology and technological means in education and making it the focus of the lecture, starting with the techniques used and making them a mockery for the student's self-learning for presentation within the classroom from multiple media and electronic devices, and ending with the departure from the physical components of education such as the smart school and virtual classrooms through which the two interactions take place. The electronic via the website and the educational process personnel via the Internet (Website Reference, 1).

It can also be defined as providing educational content with what it includes of explanations, exercises, interaction and follow-up in a partial or comprehensive manner in the classroom or remotely by means of advanced programs stored on the computer or via the Internet. The scope of the educational process through a range of means, including computers, the Internet and electronic programs.

There are several obstacles to e-learning

Cognitive weakness in the use of e-learning The home environment may not be suitable for receiving lessons, and the difficulties increase as the number of family students in one house increases, and there is an inverse proportion between the student's age and the degree of his concentration to receive lessons through e-learning. around it. The state's lack of interest in developing teachers' skills in using it in teaching, as well as the lack of an interactive teaching environment full of educational technology resources, the lack of academic cadres, the lack of interaction of parents with the e-learning system, in addition to the poor financial support for training and planning, the lack of necessary materials and devices, and the lack of electronic devices and equipment in the school, laboratories and classrooms Schools equipped with

electronic equipment, the high cost of purchasing the necessary equipment and devices, the difficulty of maintaining them, and the discouragement of teachers from using e-learning (Website Reference , 2).

Previous Studies

Ali, L. (2021) collected data through an online survey of 210 students that the vast majority of students are willing to change from physical education to online platforms and believe that they can perform well by adopting this new platform of online education system (Ali, 2021 : 131-136).

(Konig, et al. 2020) note that, the popularity of online teaching has gradually grown and schools have compensated for this move online by accepting a lower level of student achievement while changing or deleting planned assessments. Analyzes show that ICT (ICT) tools, particularly the efficiency of Digital teacher and teacher education opportunities to learn digital competence, useful in adapting to online teaching during school closures The implications for the field of teacher education and teachers' adoption of ICTs are discussed (Konig, et al, 2020 : 608-622)

(Selcuk, M. et.al 2021) showed the Introduction of online education practices in almost all educational levels in Turkey. The choice was not whether schools should participate or opt out of this new challenge, but whether and how they would deal with it. Each educational institution has faced different advantages and disadvantages, opportunities, and limitations regarding what constitutes a quality online education (Selcuk, et al, 2021 : 74-90).

Teachers, students and parents faced the school closure who had a whole new situation according to the opinion of (Huber and Helm 2020) continuation of teaching and learning was only possible through alternative means of education. In addition to the educational objectives, teachers were also asked to maintain contact with their students to account for the social integration of their learning groups (Huber and Helm, 2020 : 237-270).

(Himat, A.N. et. al. 2021) has examined student satisfaction from the Internet and quantitative method used in this research, and the learners were from a random sample. Three hundred and forty students participated. After collecting the data, the results of this research indicated that the majority of students are not satisfied with distance education because the learners were not able to learn from online education compared to the traditional classroom setup, and the learners did not have access to internet-based learning through the computer or smartphone. Web-based learning was not favored by students, and learners did not seek to compare lesson descriptions about the online learning process to the traditional way of a classroom.

Also, online learning was not able to learn independently. However, they were somehow satisfied with the role of the teachers who played their role as facilitators during the e-learning (Himat, et al, 2021 : 16-29).

Electronic Simultaneous and Traditional Education:

Components of Simultaneous e-learning include delivery of content in multiple formats, management of the learning experience, and a networked community of learners, content developers and experts. Simultaneous e-learning is personalized, focused on the individual learner. Its environment includes self-coaching, several virtual events, mentoring, simulation, collaboration, assessment, competency roadmap, online store, and learning management system.

E-learning uses the power of networks, not just the Internet but also digital and satellite content to enable learning.

Educators and learners must adapt to the changing environment; otherwise Simultaneous e-learning will fail. E-learning provides faster learning at lower cost, increased access to learning, and clear accountability to all involved in the learning process. These benefits do not guarantee positive gains in educational objectives due to minimal Social interaction and minimal student-teacher experience with technology (Mustafa, et al, 2021 :342-359)

Traditional A Simultaneous learning is learning within the scope of the classroom, where it is seen as teacher-centered and fixed. Learning takes place with the participation of the whole class, it takes place in the classroom and at school. The teacher conducts the lesson according to the study program and the curriculum. In general, A Simultaneous learning provides advantages such as convenience, flexibility, more interaction, and continuity in life responsibilities. Furthermore, the teacher dictates the lesson structure and time division. A Simultaneous learning components include the blackboard, books, the teacher, and the students in the classroom.

A Simultaneous learning can help students enhance skills in teaching physics. Given this, educators, educators, and administrators should consider students' needs and knowledge backgrounds in Simultaneous and A Simultaneous learning in teaching physics.

The difference between Simultaneous and A Simultaneous learning is that Simultaneous learning involves a group of students engaged in learning at the same time similar to a virtual classroom while A Simultaneous learning involves student-centered learning similar to a self-study approach with necessary online learning resources.

Simultaneous learning is similar to a virtual classroom, and involves a group of students engaged in learning at the same time while a simultaneous learning involves student-centered learning similar to a self-study approach with necessary online learning resources (] D.R. Rashty).

Physics and E-learning:

Physics is the science in which the capabilities are available that prompt the learner to observe, read, research, experiment, develop and test hypotheses and thus reach results. It is the basic science that affects all aspects of life, and in many other sciences such as chemistry, biology, earth sciences, mathematics, and applied sciences such as medicine. Engineering, agriculture, industry and others. Basically, it is a science that studies nature and its phenomena, and seeks to explain it and lay down the laws that govern it and enter into new applications on the one hand, and to preserve them on the other hand. And galaxies, the world of the vast universe.

The educational process suffers from many problems in all fields, especially the teaching of science, especially physics, who’s learning still faces great challenges, represented by the difficulties that students face in understanding its contents, and the problems that the teacher faces in terms of teaching and evaluation strategies, and in the experiments and scientific and technological means used in teaching it (Ababna, 2017)

The problems facing the teaching of physics are not only specific to the student, but have become related to the teacher, the textbook and laboratory experiments associated with it, as well as the use of modern technology in teaching, and the number of weekly physics classes allocated to this subject in the school program (Magdalena, 2010)

There are many problems resulting from the interruption of studies in schools, which prompted researchers to present many studies to help teachers, students and society find appropriate solutions.

(Al-Taie, 2021) showed that the use of modern technology in teaching physics without abandoning the usual methods and attending the classroom, through direct interaction inside the classroom face to face between teachers and students, and indirect interaction using modern communication mechanisms and e-learning, with the aim of developing the knowledge and skills of the student in a more efficient way (Al-Taie, 2021).

Several researches have been conducted to show how to activate e-learning in achieving the educational, cognitive and skillful goals of teaching physics, where (Sparkes 1981) indicated that there are four areas through which computers can be used in teaching physics, and they are data acquisition through conducting calculations, displaying laboratory decisions and simulating phenomena Physical and computer-based education and record-keeping of student performance (Sparkes, 1981).

Borghi and others noted in their study in 1989 that there is a positive effect of computer educational programs related to the subject of wave propagation in physics on achievement and motivation towards learning (Borghi, et al, 1989)

Al-Hasnawi and others, in the 2001 study, showed the tendency of the experimental group that studied using the computer as an explanatory method towards physics, compared to the control group that studied in the usual way, as well as making educational experiences using the computer more effective, lasting impact, and less likely to be forgotten (Al-Hasnawi, et al, 2001).

The study (Al-Bawi and Al-Samarrai, 2003) showed the effectiveness of individual computer learning in developing scientific thinking among the experimental group, which learned individually using the computer, compared to their peers who studied in the traditional way. From this we find that the researchers have used the computer in teaching physics for different stages of study, and they have reached different results depending on the type of study and the nature of the measured variables. (Al-Bawi and Al-Samarrai, 2003).

Table (1): Personal characteristics of the study sample

Personal characteristics	Gender	Number	Percentage
Gender	Male	25	35.7
	Female	45	64.3
	More than 18 years	50	71.4
	Less than 18 years	20	28.6
Qualification	Intermediate	17	24.3
	Middle School	31	44.3
	Undergraduate	22	31.4

Table No. (1) shows the personal characteristics of the studied sample in terms of gender (male or female) and age (more than 18 years and less than 18 years) who studied physics, because the study excluded all questionnaires for those who did not study physics, and the table shows the

academic qualifications of the sample selected in the study (Intermediate, preparatory and university students who studied physics)

Table (2): It shows the frequencies, the arithmetic mean, and the standard deviation for 20 phrases taught by electronic physics

Order	Statement	Scale	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Average Arithmetic	Standard Deviation
1	Physics is difficult and complex	Repetition	23	25	9	12	1	2.1857	1.1202
		Percentage	32.9	35.7	12.9	17.1	1.4		
2	E-learning contributes to the study of physics	Repetition	16	38	7	7	0	2.1571	0.987
		Percentage	22.9	54.3	10	10	0		
3	E-learning contributes to increasing the skill of teachers in setting physics questions	Repetition	16	31	15	8	0	2.2143	0.9308
		Percentage	22.9	44.3	21.4	11.4	0		
4	Difficulty learning physics without a teacher	Repetition	32	26	7	5	0	1.785	0.899
		Percentage	45.7	37.1	10	7.1	0		
5	Unavailability of educational sites for some physics subjects	Repetition	4	18	14	25	9	3.242	1.1476
		Percentage	5.7	25.7	20	35.7	12.9		
6	I can deal with the computer	Repetition	19	15	4	25	7	2.8	1.4305
		Percentage	27.1	21.4	5.7	35.7	10		
7	Internet is always available	Repetition	2	7	6	39	16	3.857	0.982
		Percentage	2.9	10	8.6	55.7	22.9		
8	Practical skills cannot be applied in e-learning	Repetition	24	27	11	6	2	2.071	1.053
		Percentage	34.3	38.6	15.7	8.6	2.9		
9	E-learning takes a lot of time	Repetition	26	22	13	9	0	2.071	1.04
		Percentage	37.1	31.4	18.6	12.9	0		
10	Not having enough computers at home for all the brothers students	Repetition	37	25	5	3	0	1.628	0.8
		Percentage	52.9	35.7	7.1	4.3	0		
11	Loss of time when browsing websites to search for the required physics lesson	Repetition	30	25	8	6	1	1.9	1.009
		Percentage	42.9	35.7	11.4	8.6	1.4		
12	Lack of interaction between teacher and student	Repetition	33	27	6	3	1	1.742	0.895
		Percentage	47.1	38.6	8.6	4.3	1.4		
13	Difficulty reviewing the lesson on the screen	Repetition	25	23	13	9	0	2.085	1.031
		Percentage	35.7	32.9	18.6	12.9	0		
14	The class is best taught physics from the computer	Repetition	41	18	6	4	1	1.657	0.9613
		Percentage	58.6	25.7	8.6	5.7	1.4		
15	Get busy with sites that are not related to the lesson	Repetition	24	19	7	14	6	2.414	1.367
		Percentage	34.3	27.1	10	20	8.6		
16	Lack of human relations between	Repetition	34	22	10	2	2	1.8	0.986
		Percentage	48.6	31.4	14.3	2.9	2.9		

	the teacher and the student								
17	Poor response of students to E-learning	Repetition	21	23	14	6	6	2.328	1.236
		Percentage	30	32.9	20	8.6	8.6		
18	The electronic material is easy and accessible for those who have difficulty organizing	Repetition	31	27	9	2	1	1.785	0.882
		Percentage	44.3	38.6	12.9	2.9	1.4		
19	The curriculum of physics does not agree with the philosophy of e-learning	Repetition	13	7	13	16	21	3.357	1.4747
		Percentage	18.6	10	18.6	22.9	30		
20	Poor commitment of students to the timing of the electronic lecture	Repetition	23	23	11	10	3	2.242	1.1848
		Percentage	32.9	32.9	15.7	14.3	4.3		
Total of Percentages			33.87	32	13.435	15.08	5.505		

Table (2) shows 20 statements indicating the study of physics and whether it can be studied electronically. The questions were answered using the SPSS statistical package program. It was confirmed that the objectives of the study were achieved by means of statistical methods (arithmetic means and standard deviations).

Where it was found from the study that (65.87%) of the respondents strongly agree or agree with the statements of the study and that (13.435%) were neutral while (20.585%) were strongly disagree or agree and its arithmetic mean ranged between (3.857 - 1.628), which indicates homogeneity of answers Individuals either have a standard deviation ranging between (1.4747 - 0.8), which indicates the homogeneity of the data.

Recommendations

1- E-learning should be a complement to traditional education and not a substitute for it.

2- Providing physics teachers with information, concepts and skills that contribute to developing their e-learning competencies.

3- Appropriate training for students to use technology for learning by holding training courses for them.

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