A proposed design model for blended education depending on the E-learning evaluation model compared to regular education in universities, based on the viewpoint of the beneficiaries

Osama basil gazi

Madenat Alelem University College

Osama87@mauc.edu.iq

Abstract:

The aim of the current research is to design a model to evaluate e-learning compared to formal education in Iraqi universities from the beneficiaries' point of view, identify the advantages and disadvantages of e-learning, and propose a design for blended learning based on the results of this study.

By verifying the hypothesis, the research sample of Iraqi university students' attitudes about e-learning was surveyed, and the factor analysis of the correlation coefficients between the questionnaire questions revealed one general component and many collective factors regarding the benefits and drawbacks of e-learning. The research sample consisted of (100) teachers and (200) students from five Iraqi universities.

A questionnaire consisting of (30) items was used to identify the opinions of the research sample regarding e-learning and traditional education. The data was analyzed using the rotation of factors using the Varimax Method.

The results showed eight dimensions around which the negatives and positives of electronic and traditional education revolve.

Based on the results, the researchers proposed a new model for blended learning that can be used in Iraqi universities according to their available capabilities.

Keywords : E-learning . education . blended education . web based learning

نموذج تصميمي مقترح للتعليم المدمج بالاعتماد على نموذج تقييم التعلم الالكتروني مع التعليم الاعتيادي في الجامعات من وجهة نظر المستفيدين

اسامة باسل غازي

كلية مدينة العلم الجامعة

الخلاصة :

يهدف البحث الحالي إلى تصميم نموذج لتقييم التعلم الإلكتروني مقارنة بالتعليم الرسمي في الجامعات العراقية من وجهة نظر المستفيدين، وتحديد مزايا وعيوب التعلم الإلكتروني، واقتراح تصميم للتعليم المدمج القائم على التعلم الإلكتروني. على نتائج هذه الدراسة من خلال التحقق من فرضية (التحليل العاملي لمعاملات الارتباط بين فقرات الاستبيان حول الاتجاه نحو التعلم الإلكتروني لدى عينة الدراسة من طلبة الجامعات العراقية يكشف عن عامل عام واحد وعدد من العوامل الجماعية لمزايا وعيوب التعلم الإلكتروني . وتكونت عينة البحث من (100) مدرس و(200) طالب من خمس جامعات عراقية وتم استخدام استبانة مكونة من (30) فقرة للتعرف على آراء عينة البحث حول التعلم الإلكتروني والتعليم التقليدي. تم تحليل البيانات بطريقة دوران العوامل باستخدام (طريقة فاريماكس).

الكلمات المفتاحية : التعلم الالكتروني ، التعلم ، التعلم التقليدي ، التعلم المزدوج ، التعلم باستخدام شبكة الانترنيت .

1- Introduction

In the traditional style of education, the teacher is the main focus of the educational process and classroom management, choosing the type and quantity of educational material to be provided to the student, and the student is restricted by the controls and deaths of the official working hours during his learning.

As for e-learning, there is greater freedom for the student to choose the time and place

of study, and the role of the teacher is limited to guidance and counseling only.

E-learning refers to using electronic media and information and communication technologies in education. It is broadly synonymous with multimedia learning, technology-enhanced learning, computer-based instruction, digital education, m-learning, virtual learning environments, online education, and web-based training.

These other titles highlight a specific feature, element, or distribution mode. Text, voice, picture, animation, and streaming video are all delivered through various media in e-learning (Other technological applications and procedures include computer-based learning, CD-ROM, satellite TV, audio or video cassette, local intranet/extranet, and web-based learning). Many e-learning processes are supported by information and communication technologies, which can be standalone or dependent on the Internet or local networks in networked learning. Each type (traditional education or E-learning) certainly has advantages and disadvantages, and there are also those who oppose or support the use of any of them.

So Bersin, Josh (2004) sees "that despite the modern advances in the field of education, there will always be a role for the teacher, professor, or subject-matter expert to teach and entertain us in a classroom. Instructors convey enthusiasm, expert knowledge, experience, and context. They can answer questions and change the pace and direction of a class based on the audience. Even more importantly, as we have learned in e-learning, instructor-led training has a cultural effect: people interact and learn from one another" (Bersin, Josh, 2004).

So, In order to compare traditional and online learning as two distinct approaches to knowledge acquisition, this study will compare the two. The effectiveness of online learning versus traditional learning will be assessed by looking at the results of a questionnaire that compares various perspectives on using both.

1-1 Problem statement:

E-learning has multiple pluses, including its flexibility in terms of presentation methods, application time, and low cost. In addition, it facilitates teaching and training an unlimited number of learners at once, taking exams and grading automatically. Reports and homework are received and evaluated, thus saving time and methods. Convenience for students to choose their learning time according to their characteristics, take responsibility for their education, and improve their computer skills.

E-learning makes education student-centered, where students participate in the learning process, and teachers act as supervisors and guides for students (Al-Salman et al., 2021).

Users can acquire the abilities they'll need for the future by using the Internet in their schooling (Haider and Al-Salman, 2020).

Given that students have access to internet resources around the clock, online education is beneficial for them (Stern, 2020). The majority of educational institutions worldwide were compelled to transition to online instruction because of the COVID-19 pandemic, but several lacked the necessary resources to teach students remotely effectively. Moreover, there are global differences in faculty training between high-, middle-, and low-income nations. For underprivileged pupils, internet access is yet another significant barrier. In-person training is more effective than online learning (Zakariya et al., 2021).

In Iraqi universities, e-learning was used before 2020 and the spread of the coronavirus pandemic in a minimal way, difficulties related to the weak infrastructure of universities, and the lack of experience of most professors and students with mechanisms and methods of teaching and electronic calendar.

Based on the researcher's experience teaching in Iraqi universities for more than ten years, he concluded that e-learning makes students obtain high test marks. Still, these degrees need to reflect the extent to which they genuinely absorb information and study skills, and this may be due to errors in presentation, the

educational material or the method of conducting electronic tests.

Therefore, after the application of e-learning became an inevitable issue in Iraq, the researcher considered conducting research that reveals the impressions of the students who benefit from it and outlines the benefits and drawbacks, from their perspective, of e-learning compared to traditional education. Present proposed solutions to address the negatives and enhance the positives, and then suggest designing a web app framework to improve e-learning.

2 -The aim of the research

a- The current research aims to design a model for evaluating e-learning compared to regular education in Iraqi universities based on the viewpoint of the beneficiaries.

b - evaluating the benefits and drawbacks of online education and working to fix some of these issues.

c- Suggest a design for blended learning based on the results of this study

2-1 Hypothesis of the research:

In a research sample of students from Iraqi universities, the factor analysis of the correlation coefficients between the questionnaire questions on the trend towards e-learning indicates one general factor and many group factors for the benefits and drawbacks of e-learning.

3-Literature Review

N0	Tittle	Author	year	Objectives	Theory/ model	method	Tools	Findings	Limitations	Future work
1	The Impact of E-assessments System on the Success of the Implementation Process	Mohammad Ali H. Eljinini and Salwa Alsamarai, and Suha Hameed, and Amaal Amawi	2012	determine the views of the sample people who are students at Isra University in Jordan who have utilized the electronic assessments system, or e-assessments . .		Analytical descriptive method	a questionnaire with several factors that assessed the significant relationships between them	1. There is a correlation between the effectiveness of the e-assessments system deployment process and the availability of the requirements. 2. Members of the research samples have differing opinions on which variables have the most influence. 3. There are differences in opinions on every variable.	1	The Impact of E-assessments System on the Success of the Implementation Process
2	IT	Joanna	2015	evaluate		Experimen	test	The data	2	IT

	training - lecturer or e-learning? Case study	Sadłowska-Wrzesińsk, Krzysztof Grupk and Izabela Gabryelewicz		the effects education: learning how to use the Excel spreadsheet		tal research, the first group learned style full-time: 20 contact hours, - the second group learned in style parttime: 9 contact hours + e-learning + student's own work.		obtained and unstructured interviews both with students and with teachers applying the method of e-learning in their daily teaching practice, lead to the formulation of hypothetical causes of the lower effectiveness of e-learning activities compared to the contact classes. These include first and foremost: -students skip e-learning courses as they treat it as addition to contact classes, -perfunctory studying of e-learning materials, -Low quality of e-learning materials, -improper selection of issues to be taught with e-learning (knowledge versus skills).		training - lecturer or e-learning? Case study

| 3 | Review of E-Learning Environment at the Kwame Nkrumah University of Science and Technology, Ghana | Tawiah, R. Okyere, GA., Lamptey, R. Oduro,W , and Thompsom M. | 2019 | explores the policies for elearning and examines the awareness of teaching practices that incorporates e-learning among educational managers, librarians, teachers, IT experts and students of Kwame Nkrumah University of Science and Technology (KNUST) in Ghana. | | descriptive type with data analyses | Questionnaire and interview and discussion | 1 -most of managers and teaching participants indicated that the university hasn't policy for e-learning, they emphasized the need for such a policy and/or strategy. -2 Awareness of teaching practices that incorporate e-learning was extremely high among the IT experts, teachers and students but low in the educational managers. 3 -suggesting that KNUST is applying the hybrid mode of learning. | 1 -educational managers, IT experts and teachers of the university. 2- students population was postgraduate level, from College of Science, College of Agriculture, College of Architecture, College of Health and Allied Sciences, College of Arts and College of Engineering. | importance of adopting policies and strategies that are capable of turning the weakness into strength and bridging the gaps in order to improve the e-learning environment of the university. |
| 4 | Game -based e-learning for urban tourism education throu | Chung-Shing Chan, Yat-hang Chan & Tsz Heung Agnes Fong | 2020 | Using an online game with a fictitious city as the scenario, e-learning is used to teach urban tourism. | | include gamification, scenario-based learning, and e-learning components into the teaching of tourist geography | | The game's overall efficacy is deemed to be mostly favorable. Results from paired-sampled t-tests | 1 -Urban tourism education 2- A sample of voluntary university students. | enhance the effectiveness of game-based learning in tourism education through clever integration of |

#	Title	Author	Year		Model					
	gh an online scenario game					and planning.		indicate that participants' basic knowledge is successfully improved by this gaming platform. about new concepts, models and issues in the urban tourism context.		modes of learning and other e-Learning elements.
5	Creation and Implementation of a Self-Diagnostic Mobile Application to Advance Learning in Remote Practice Learning	Semin Kim and Hyung-Jin Mun	2021	creation and implementation of a mobile application that enables students to assess their own progress Acquiring non-face-to-face experience with Arduino	ADDIE model	a mobile application was produced according the ADDIE model with five stages (analysis, design, development, implementation, and evaluation) and applied to Arduino practice learning.	The questionnaire	1. that it was crucial to self-diagnose learning progress in non-face-to-face practice learning. 2. In 17 out of 22 questionnaire items, the majority of learners gave the learning progress self-diagnostic mobile application, created for this study, a score of four or above. 3. The application was also heavily used for learning that did not take place in person. 4-The results of the usability rating by gender	1. The Arduino course is the focus of our investigation. 2. First-year university students in IT-related fields .	develop a mobile application that adds a function to translate students' feedback into sentences by using voice input in practice learning classes.

No	Title	Authors	Year	Aim	Theory	Design	Tool	Results	Sample	Recommendations
								could not be verified by this investigation.		
6	The ...n of an ...ectronic ...earning ...onment. ...t of the ...unicativ ...ory and ...pact on the ...vement ...e fourth ...cientific ...dents of physics	Majida Ibraheem Ali, and Karim jabber sabr	2022	Designing an electronic learning environment based on the communicative theory and revealing its impact on the fourth scientific achievement of Physics	communicative theory	Experimental design with two groups, experimental and control	Multiple-choice type test to measure the achievement of physics subject	1 -The possibility of using e-learning according to the communicative theory in hybrid education 2 -The students of the experimental group outperformed the students of the	1 - Students of the fourth scientific grade in secondary schools in the city of Baghdad -2 An electronic learning environment according to the communicative theory 3- Google Classroom platform	use of electronic learning environments based on communicative theory in teaching other subjects

3-1-Discussion

Previous studies differed in their research method; some used descriptive research as in studies (1,2), while studies (3,4,5) used experimental research.

The research community and its sample in the studies (1,2,4,5) were university students, while the study (6) dealt with secondary students, and the study (3) dealt with students, teachers and education directors.

All previous studies have proven the effectiveness of e-learning in improving the learning process.

Some studies suggested conducting similar future research

4-Research design and methods

4-1-Research type:

a) The researcher will analyze the benefits and drawbacks of the two learning systems using a descriptive-analytical technique and demonstrate how E-learning may be applied broadly in an educational setting. b) The researcher will use the descriptive approach to reveal the opinion of the research sample towards e-learning and t-learning through their answers to the questionnaire paragraphs.

4-2-Population and sample

4-2-1-Research population:

The research population is represented by teachers and students of Iraqi universities in the capital, Baghdad, exclusively for the academic year 2021-2022, which are:

A- University of Baghdad.

B- The Iraqi University.

C- Al-Mustansiriya University.

D- University of Technology.

E- Karh University of Science.

4-2-2-The research sample:

The research sample was randomly selected as follows:

A- The research sample was chosen from the teachers of the faculties in the targeted universities, the total (100) teachers from each university and with different specializations.

B - A sample of students was selected from the targeted universities, the total (200) students from each university and with different specializations, as in Table (1).

Table (1) : Distribution of the research sample by universities and specializations

The University	No.teacher	No.student
Baghdad	25	55
The Iraqi	20	35
Al-Mustansiriya	25	45
Technology.	20	45
Karh of Science	10	20
Total	100	200

4-3-Research tool:

A - The researcher utilized the surveys to compare e-learning to traditional forms of education for undergraduate students. So, after reviewing previous studies, the researcher builds a questionnaire to poll students about the use of e-learning according to the following steps:

1- Prepare (30) paragraphs related to the pros and cons of e-learning and traditional education.

2- The researcher adopted the Likert Scale[1], in which the respondent is asked to determine the degree of his approval or disagreement with specific options, and this scale consists of three graduated options.

It is (agree, not sure, disagree) and grades (3,2,1) were given respectively. Thus, the total score on the scale ranges (from 30-90).

In order to verify the validity of the questionnaire, it was presented to the specialists, and 80% of the experts agreed with it.

It also obtained a stability of 0.79 using the Alpha Cronbach method.

4-3-2- Data analysis method

After emptying the answers to the questionnaire items, the data were analyzed by the main components technique of factor analysis.

Factor Rotation Employing the Varimax Technique.

5 -Discussion of the results:

5-1-Confirming the validity of the hypothesis:

The cost of the questionnaire items and the correlation coefficients between them, as well as a factor analysis of the correlation matrix using the main components method and the rotation method of Varimax to extract factors after the rotation, are used to verify this hypothesis, which will transpire as follows:

-Analysis of the factors using the method of the main components (after rotation) revealed extract (8) factors that carried (68.9%) of the total variance .
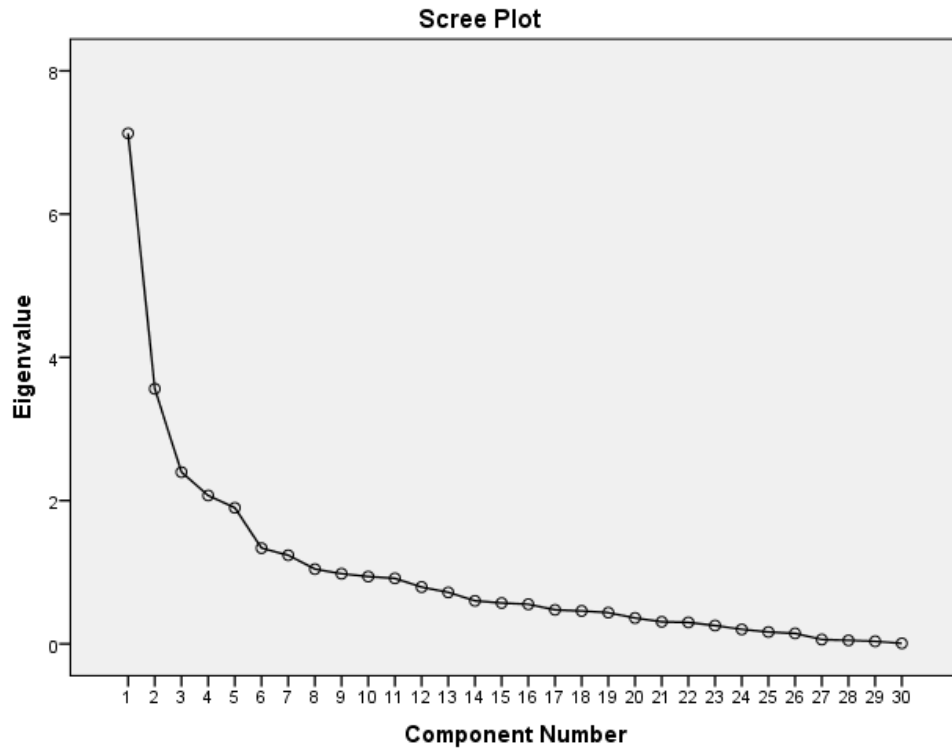
-Because of these fundamental factors, the following criteria were used as criteria to determine the identity of the extracted factors after the rotation. These criteria are:

  a. It should not be the root underlying less than 1.

  b.   The number of items loaded with a factor must not be less than 3.

  c.   The minimum item to be loaded with a factor must not be less than 0.40.

Figure(1) : Scree plot

In light of these criteria, the researcher illustrates the extracted factors after the rotation of the questionnaire items in the following manner :

Factor 1: 3 items were loaded. The variance of this factor reached 23.760% of the total variance. Its latent root was 7.128. Below are the items loaded with these factors and the value of the loads.

Table (2) : Difficulty evaluating students of e-learning .

Item No.	Item Content	Load Value
21	I think that E-learning increases the phenomenon of cheating in exams.	.933
24	The evaluation by E-learning do not provide a real indicator of student's achievement of academic.	.931
27	I think there is a difficulty in evaluating students piratical achievement electronically.	.923

Based on the results presented in Table 2 and a review of the content of the items and the sizes of the loads and their trends, it becomes clear that it is a unipolar factor and it can be called (Difficulty evaluating students of e-learning).

Factor2: 3 items were loaded. The variance of this factor reached 11.869% of the total variance. Its latent root was 3.561 Below are the items loaded with these factors and the value of loads:

Table (3) : Lack of equipment and experienced teachers of e-learning

Item No.	Item Content	Load Value
5	Poor internet makes simultaneous E-learning very tiring**.**	-.739
7	I find that most of the teachers are not qualified to use E-learning.	.691
28	Electronic lectures require advanced devices and expensive smart applications.	.673

67

Based on the results presented in Table 3 and a review of the content of the items, the sizes of the loads and their trends, it becomes clear that it is a unipolar factor, and it can be called a lack of equipment and experienced e-learning teachers.

Factor3: 3 items were loaded. The variance of this factor reached 7.991% of the total variance. Its latent root was 2.397. Below are the items loaded with these factors and the value of loads.

Table (4): Unwillingness to continue with e-learning

Item No.	Item Content	Load Value
6	I will stop using the E-learning once the current conditions are over	.947
11	I think that using E-learning is an educational fad that will soon be over.	.941
17	I think parents don't like their children study online.	.929

Based on the results presented in Table 4 and a review of the content of the items, sizes of the loads and their trends, it becomes clear that it is a unipolar factor, and it can be called (Unwillingness to continue with e-learning).

Factor 4: 3 items were loaded. The variance of this factor reached 6.903% of the total variance. Its latent root was 2.071. Below are the items loaded with these factors and the value of loads.

Table (5) : Fulfillment of personal needs

Item No.	Item Content	Load Value
20	I hope to participate in conferences and exhibitions a bout E-learning.	.923
8	I would like to continue my studies and researches using E-learning	.902
16	I express my opinion and participate in discussions more than I do in traditional education.	.716

Based on the results presented in Table 5 and a review of the content of the items, sizes of the loads and their trends, it becomes clear that it is a unipolar factor, and it can be called (Fulfillment of personal needs).

Factor 5: 6 items were loaded. The variance of this factor reached 6.333% of the total variance. Its latent root was 1.900. Below are the items loaded with these factors and the value of loads.

Table (6) : Disadvantages of e-learning

Item No.	Item Content	Load Value
3	I think that using E-learning in learning and education is something tired and stressful.	.734
22	I avoid participating with my colleagues in educational activities using E-learning.	.671
30	I think that negatives of E-learning more than its positives.	.542
9	I think that using E-learning does not take into account the individual circumstances among the students.	-.541
15	I think that E-learning is not suitable for teaching practical subjects.	.490
23	I think that learning by using E-learning weakens social cohesion among students.	-.442

Based on the results presented in Table 6 and a review of the content of the items, sizes of the loads and their trends, it becomes clear that it is a unipolar factor, and it can be called (the disadvantages of e-learning).

Factor 6: 5 items were loaded. The variance of this factor reached 4.455% of the total variance. Its latent root was 1.336. Below are the items loaded with these factors and the value of loads:

Table (7): E-learning quality

Item No.	Item Content	Load Value
1	E-learning makes learning fun and easy.	.743
29	I think that E-learning contributes in solving many of the problems that traditional educational suffers from.	.690
26	I see that using E-learning gives me freedom to express myself.	-.544
12	I think that using E-learning stimulates my attention and motivation for learning.	.520
18	I think that E-learning develops my thinking	.517

Based on the results presented in Table 7 and a review of the content of the items, sizes of the loads and their trends, it becomes clear that it is a unipolar factor, and it can be called (e-learning quality).

Factor 7: 3 items were loaded. The variance of this factor reached 4.126% of the total variance. Its latent root was 1.238. Below are the items loaded with these factors and the value of loads.

Table (8) : The necessity of preparing the requirements for the continuation of e-learning

Item No.	Item Content	Load Value
25	It is preferable to create platforms for communication between students and administration	.762
19	Local laws should be issued to recognize the certificate via E-learning.	.759
13	Technical and administrative requirement for E-learning should be provided.	.726

Based on the results presented in Table 8 and a review of the content of the items, sizes of the loads and their trends, it becomes clear that it is a unipolar factor, and it can be called (The necessity of preparing the requirements for the continuation of e-learning).

Factor 8: 4 items were loaded. The variance of this factor reached 3.480% of the total variance. Its latent root was 1.044. Below are the items loaded with these factors and the value of loads.

Table (9): Enjoyment and enthusiasm for e-learning

Item No.	Item Content	Load Value
4	I am keen on E-learning as long as it is available.	.678
14	I discuses with my colleagues about the success of the experience of using E-learning.	.676
10	I appreciate the teacher who uses E-learning methods in education.	.522
2	I try to make a list of useful educational sites and share them with my colleagues.	.492

Based on the results presented in Table 9 and a review of the content of the items, sizes of the loads, and their trends, it becomes clear that it is a unipolar factor, and it can be called (Enjoyment and enthusiasm for e-learning).

In Table (10), there is a summary of the questionnaire and the comments .

Table (10) : Summary of the questionnaire

Facto No	Item No.=>3	Total Variance > %o.45	Latent Root R>1	Name Factor	Comments
1	3	23.760	7.128	Difficulty evaluating students of e-learning	Disadvantage
2	3	11.869	3.561	Lack of equipment and experienced teachers of e-learning	Disadvantage
3	3	7.991	2.397	Unwillingness to continue with e-learning	Disadvantage
4	3	6.903	2.071	Fulfillment of personal needs	Advantage
5	6	6.333	1.900	Disadvantages of e-learning	Disadvantage
6	5	4.455	1.336	E-learning quality	Advantage
7	3	4.126	1.238	The necessity of preparing the requirements for the continuation of e-learning	Disadvantage
8	4	3.480	1.044	Enjoyment and enthusiasm for e-learning	Advantage

First: The advantages of E-learning:
1- Fulfillment of personal needs.
2- E-learning quality.
3- Enjoyment and enthusiasm for e-learning
Second: The disadvantages of E-learning:
1- Difficulty evaluating students of e-learning
Lack of equipment and experienced
  2- teachers of e-learning.
3- Unwillingness to continue with e-learning.
4- Disadvantages of e-learning.
5- The necessity of preparing the requirements for the continuation of e-learning**.**
The results of the research show that despite the technical and administrative support for e-learning, it failed to meet all educational needs and that the disadvantages of e-learning from the point of view of the research sample are more than its positives, represented by:
- The feeling of isolation, absence of feelings, lack of sense of community and face-to-face interaction with peers
- Problems related to time with the information overload and the lack of time needed to do the homework compared to traditional teaching.

- Problems related to evaluation cheating has become a general phenomenon in the educational process.
- One of the most prominent obstacles to e-learning is the cost of providing computers, programming, maintenance, training, and internet access.
- The wrong use of technology is due to technical reasons, such as lack of training in using devices or ethical reasons.

6.0 Suggestions for future work
Based on the results of this research, which showed some of the pros and cons of e-learning and the obstacles to its successful use from the student's point of view.
Therefore, the researcher designed a blended learning model that combines the advantages of e-learning and traditional education and proposes its use in Iraqi universities, especially since it is easy to use according to the capabilities available in the Iraqi university educational environment, which is:
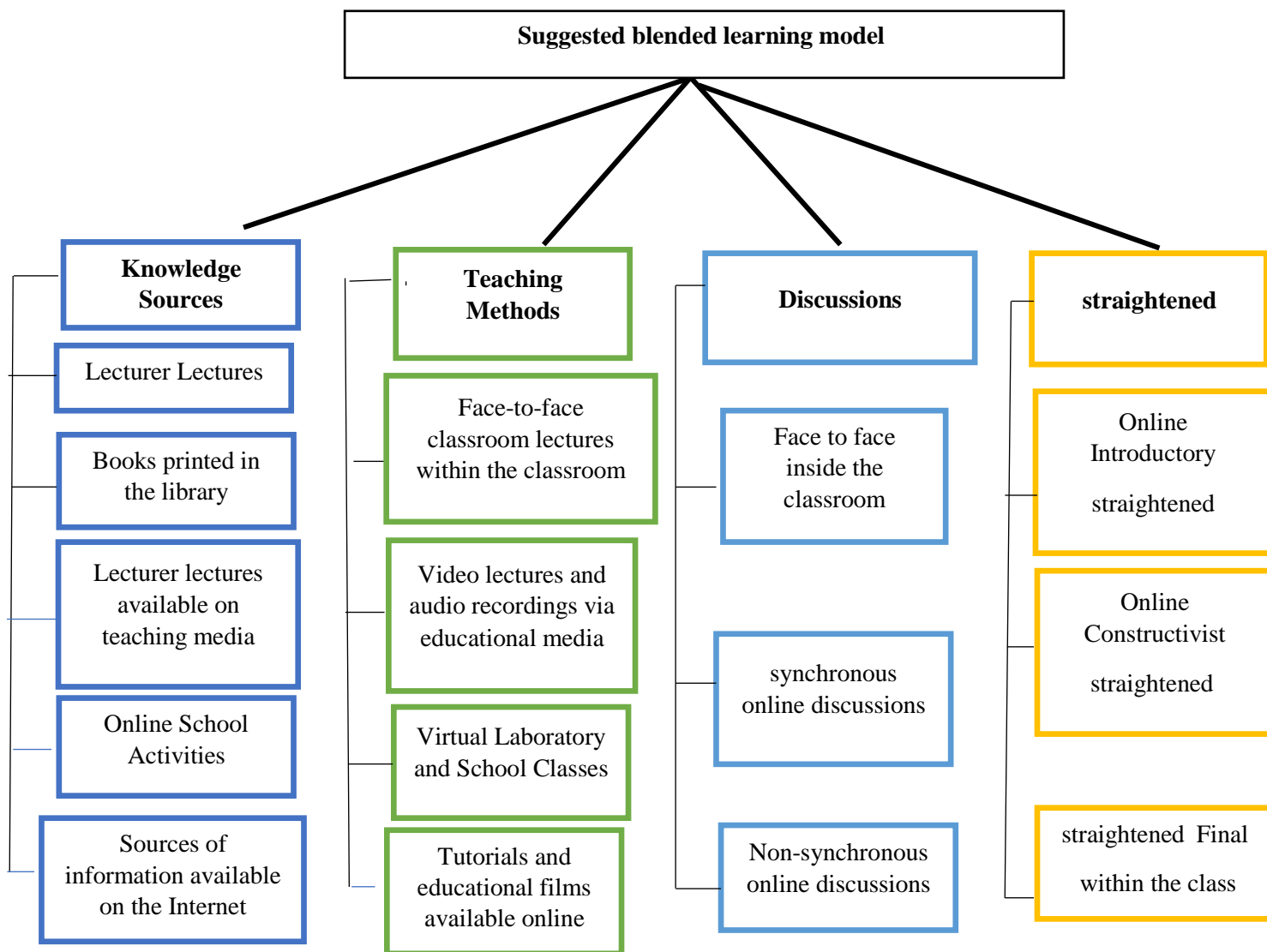
Figure(2) : Suggested blended learning model

7-Conclusion:

In this research, the researchers used a model to analyze the answers of the research sample, consisting of teachers and students from some Iraqi universities, to a questionnaire consisting of (30) items that were prepared for the purpose of surveying the opinions of the research sample about e-learning and traditional education.

The data was analyzed using the rotation of factors using the Varimax Method.

The researchers presented a proposed model for education. The blended program was designed to avoid the shortcomings of traditional and electronic education and take advantage of their advantages.

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