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Varied learning as A New Upcoming Learning Method During the Pandemic in Architectural learning

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ABSTRACT

Research problem: when the pandemic emerges and the threatens people's lives; social distance becomes one of the most important requirements to ensure the public safety. The social distance reaches the learning pillars, the instructor and the student, that's why the new methods should be appeared, to solve the learning problem especially when the all-traditional ways cannot meet the pandemic safety criteria which requires social distance. The architectural studies especially the undergraduate have different learning courses; theoretical, practical and studio learning classes. That's why the research problem is the "need the future learning method for the future and during the pandemic. The research aims to find a method of learning that takes into account the current conditions in light of the Corona pandemic, suitable for lecturers and students.
Research methodology: The research will use the theoretical analytic for the learning methods to find the research concepts which will build the new learning method concept. The research relied on the descriptive approach in analyzing the results of the questionnaire by comparing the learning approaches for the purpose of reaching varied learning. The questionnaire was analyzed using SPSS to reach the results.
The main conclusions are varied learning gives flexibility to students and instructors in temporal and spatial dimensions, allowing students and instructors to interact better, and a system that can be applied in critical times that requires the integration of a face-to-face learning system with various electronic learning.

1. Introduction

The process of teaching and learning passed through multiple stages and different conditions, which led to the emergence of different ways of learning that took into account different circumstances, knowledge and cultures.

Literature review have shown the types of learning as follows:

A. Face to face learning: Same time, Same place – This is a traditional face-to-face approach where the instructor and learners are in the same geographical location at the same time, with all participants having access to the same resources, files and synchronous discussion at the same time [1].
B. Distance learning: In distance learning, the learner and the teacher are in constant communication with each other through spatially separated learning courses, forms of control, electronic communication and other technologies of the Internet. Distance learning based on the use of Internet technology provides access to the global information education network [2].

Distance learning provides an opportunity for all those who want to learn to continuously improve their skills. In such a teaching process, the student learns independent teaching

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materials in an interactive mode is supervised, performs control work under the direct guidance of the teacher, and interacts with other "vertical learning group" learners in the class [2].

Technologies are used in distance learning are:

- Interactive audio and video conferencing;
- sending and receiving e-mail.

Distance learning develops independent thinking skills, teaches you to think systemically, analytically assess the situation, and draw conclusions and predictions. It allows you to get acquainted with the latest information and helps to easily navigate in the discipline. These qualities, which today show the high qualification of the specialist. The prospect of developing distance learning [2].

C. E- learning: E-learning environments have received increasing attention since the emergence of technology-based learning in the educational process. Almost all educational programs incorporate information communication technology to some extent. Thus, e-learning environments create various opportunities for students to interact with other students, instructors and authentic online materials. Teaching principles are needed for controlling the e-learning environments and are essential to the translation of theoretical framework into practical teaching techniques.

These are several principles in e-learning environments include the following statemens [3]:

- plan the educational process before the course commencement;
- encourage contact between students and e-learning materials;
- encourage students to be proactive;
- give prompt feedback and assessment in challenging e-learning tasks;
- set time on completing e-learning tasks;
- support constant communication with students to control the learning process;
- respect diverse learning styles and learning rate;
- trust in students' achievements in e-learning environments;
- organize to meet after completing e-learning assignments to discuss and to explicate the challenging and daunting tasks;
- assess the learning processes and outcomes of students.

D. Blended learning: It is an approach that forms direct and indirect online learning of educational content with the best features of classroom interaction and live instruction to personalize learning. Blended learning is an emerging type of education prepared, to provide a big convenience, by combining the positive aspects of different learning approaches. This approach is to achieve its target by combining the face-to-face interaction in traditional learning and time, place, and material richness provided by Web-based learning. Blended learning has become the well-versed educational program to make an impact in today's classrooms. From schools to universities, it is being used to bring the digital world and in-class teaching together. This approach gives the ability to be able to create flipped activities which learners can complete pre and post lesson to gain understanding of topics. And these are very beneficial as they allow time in traditional classrooms to focus on extending the learner's knowledge and to support them in reaching the higher levels of learning [4].

It uses technology to combine in-class and out-of-class learning, maximizing the educational impact for students as a result. Group learning. It is allowing the students to learn anytime, anywhere, 24x7. The present education is always promoting and encouraging the students to learn outside of the classroom and this approach is explosion in digital technology that meant that teaching could now be far more engaging. Thus, it combines online delivery of educational content with the best features of classroom interaction and live instruction to personalize learning. Thus, allowing thoughtful reflections, and differentiate instruction from student to student across a diverse group of learners [4].

E. Self-study learning: It is defined as a person initiative to analyze learning-need, frame

learning-goal, recognizing resources, learning from other or their materials, selecting and applying suitable learning tactics and assessing learning outcome [5].

F. Social distance learning (SDLM): It is a flexible, hybrid design for learning that maximizes in-person time with students while delivering most of a course content online. It shares some features with hybrid models being used on many other campuses that plan a return to in-person instruction this fall. To allow for social distancing, each course with ten or more students will split its in-person instruction time among enrolled students. This will allow students and instructors to maintain six feet of distance while they are together, a basic health and safety recommendation of both the WHO and CDC during the pandemic. It uses the pedagogy of flipped learning to prepare courses for the SDLM. Flipped learning divides the learning environment into self-study using online materials and in-person time with instructors and classmates. Direct instruction in the form of lectures, written instructions, demonstrations, texts, films, podcasts and other study materials are provided to students online in an asynchronous format. Because we are working with hybrid instruction for all students this year as a result of the pandemic, activities such as taking quizzes, turning in work, and taking exams should also happen online. In-person instruction should be used to engage students in discussing and reviewing course material, in collaborating on projects, and in laboratory work and experiential learning; in short, in-person time should be used for active learning that is difficult to duplicate online [6].

2. The elected positive concepts for the new learning methods

A. Face to face learning: online learning perceived as lack interactivity compared to face-to-face learning. It is mainly due to the lack of social presence, lack of social interaction, and lacks of students' satisfaction. However, online learning has been promoted as being more cost effective and convenient than traditional educational environments as well as providing opportunities for more learners to continue their educations [7]. They regarded face-to-face communication as more conducive to the learning process, affording better opportunity to sharing knowledge and asking for help, "easier" and more interactive, and more compatible with the needs of students [8]. Related to the importance of direct group interaction is the community aspect of face-to-face contact. Chen found that dialogue not only allows students to assess their learning but also to develop a sense of community with other students; this sense of community can alleviate the problem of isolation often reported by distance students. The students need dialogue with their instructors and with other students in order to consolidate and check on their own learning. Moreover, they list the inability to offer dialogue in the way that conventional face-to-face education does as one of the three most significant weaknesses of distance education; the inflexibility of content and study method and the isolation and individualization of the student are cited as the remaining two weaknesses [8].

B. Distance learning: Study requirements that including quality-oriented interaction in system of distance learning can be listed as [9]:
   - Increasing academic quality among high-grade management and observation.
   - Informing feedbacks of students and external partners.
   - Composing quality culture in e-learning and addition of system of distance learning education quality.
   - Fine researches in the field of distance learning, new developments and academic integration.

Awaited benefits from interaction elements of distance education [9]:

- By increasing e-learning process to use commonly in projects at future with the help of providing improvement and looking e-learning processes in terms of

constant environmental feedbacks at system of distance learning,

- By developing creative and improver thoughts with the help of examining interactive instruments integrally,
- Development of new standards with multi-presentation techniques in execution of interactive virtual course.
- Creating center of attraction and interest for students with the help of some kind of interaction elements such as script, content, design and examples at units of preparing content.
- Importance of association and communion in face-to-face education environment of academic interaction process.

C. E- learning: E-learning has the potential to develop learners who can think critically, analyze situation from different angles, tolerate other ideas, and propose creative solutions [10].

D. Blended learning: Blended learning offers students more flexible delivery options depending on the content and subject of the students. This means instructors can focus on student understanding, rather than the instructional method itself. By using a combination of digital instruction and one-on-one face time, students can work on their own with new concepts which frees instructors up to circulate and support individual students who may need individualized attention. It has many advantages like learners are allowed for more inquiry, utilize more open-ended learning, more fun, more practical and present/future learning skills, and also take ownership of their knowledge and can also teach their peers [4].

E. Social distance learning: The model achieves the following [6]:

- The learning environment is designed to maximize student learning and engagement in both the online and face-to-face course elements.
- Experts deliver direct instruction that is accessible to all students in the course.
- Students spend in-class time engaging with the material, with the instructor, and with peers.
- The learning environment can easily pivot to a fully online format, should the need for more emergency remote teaching become necessary

F. Cooperative learning: there are three forms of cooperative learning including formal cooperative learning, informal cooperative learning, and cooperative-based groups. Formal or well-constructed cooperative learning exercises refer to students working together for a period of time in a class to solve problems or to complete an assigned joint project. As for informal cooperative learning, students work together in temporary groups for a rather short period of time during a lecture to achieve a common goal. The widely used think–pair–share exercise falls into the informal cooperative learning category. In contrast, cooperative-based groups are long-term heterogeneous groups of students working together for the duration of a course to support each other to complete a joint task or to prepare for exams [11].

G. Self-study learning: Self-study learning skills are gaining special importance in adult education and in higher educational institutions. It enhances the learner's skills to plan and to manage the learning activities to get the knowledge and information and to acquire the specific skills. It is considered as one of the requirements of adaptation to the cognitive explosion in the age of rapidly changing technology and it also enhance the ability to acquire the lifelong learning [5].

3. Varied learning concept

Varied Learning is an innovative educational system that allows the use of all previous education mechanisms (face-to-face, electronic, remote, blended, etc.), but it takes into account the conditions of the faculty and the conditions of students together. As it gives flexibility in education to students and instructors, it achieves spatial and temporal flexibility for students and instructors. Among its most important features are:

A. Lowest cost: This type of education is characterized by reducing the cost for the teacher and the student through the optimal use of the educational environment, reducing the costs of moving between places of residence and education, and reducing the cost of study and educational materials.
B. More affiliation: The realistic and virtual educational environment is considered integrated between them, which achieves more belonging to the student and the teaching of the learning environment, increasing social relations and achieving intellectual, cultural and social convergence between them.
C. More flexible: This educational system is characterized by being the most flexible in its spatial and temporal dimensions, giving the student and the teacher freedom to choose the time of the lecture and divide it according to the students 'and instructors ' desire, and the method of interaction between students and instructors, determining the places for giving lectures, and dividing the students into multiple groups that can be controlled and increase the spatial spacing between them.
D. More quality: This educational system helps to improve educational outcomes and increase quality through prior planning and positive interaction between the student and the teacher in order to achieve educational goals with the labor market.
E. Varity use of technologies: This educational system relies on various educational technologies such as video, audio, and paper lectures, which increase the fun and interaction between the student and the curriculum and rely on various Internet applications.
F. Improving individual and group skills: This educational system works to improve individual and group skills through self-learning for private and public study subjects through conferences, seminars, workshops, etc., which work on the student's interaction with the university educational environment and the applied environment outside the university, which increases and improves students' skillful and intellectual capabilities.
G. Achieving social distancing: This educational system works to increase the spatial separation between students through the flexibility of the educational process between traditional, electronic and distance education, and dividing students into multiple groups and multiple halls with the application of different health measures.

4. Varied learning in architectural studios

Many studies described design studios as places where real cities, buildings, etc., are designed, improved, and transformed. The architectural design studio should function both as a learning center and a complex social organization like other learning environments [12].

The Architecture Department is distinguished from the rest of the scientific departments in universities as a result of the academic subjects that focus on the applied practical side by more than 57% of the total curriculum at the Baghdad University [13], which requires the preparation of an appropriate educational system with privacy The department deals with practical and theoretical subjects, so the research suggests a diverse educational system that deals with the specificity of the architecture department through:

A. Practical materials or studio materials: They depends on the spatial presence (face to face) and on the distance through the actual presence at the university once and the electronic presence again, with this also done through the division into groups to achieve spatial separation between students and thus achieve the spatial and temporal sharing of students.
B. Theoretical materials: They depend on being present at a distance with a greater percentage than being face to face to create effective interaction between students and the teaching, and flexibility is given in choosing the times of lectures and in line with the availability of electronic technologies and tools.

5. Questionnaire

The research was based on a specialized sample of academics in the architecture departments of the various Iraqi universities, and the sample reached 42 participants and their personal data was distinguished as follows:

A. Academic achievement: The percentage of participants who hold a doctorate degree is 52.4%, and the percentage of those who hold a master's degree is 47.6%.
B. Experience in Architectural Education: The highest percentage of participants with more than 15 years' experience was 42.9%, followed by 33.3% for participants with 10-15 years of experience, and for participants with less than 5 years' experience, 14.3%, and the lowest rate was 9.5% for participants with experience Between 5-10 years.
C. It is indicated from the personal data of the respondents in the questionnaire that have long experience in architectural education, and that more than half of them have a doctorate degree.

6. Results

First: The data were analyzed using SPSS to extract the arithmetic mean of the answers to the questionnaire participants for a set of questions that express the experience of the participants in the questionnaire as follows (table 1):

A. (X1): The results showed that the extent of the instructor's communication with students directly face to face in light of the Corona pandemic is strong, with an arithmetic mean of 3.43.
B. (X2): The results showed that the extent of the instructor's communication with students remotely (electronically) in light of the Corona pandemic is moderate, with an arithmetic mean of 2.86.
C. (X3): The results showed that the extent of students' desire to communicate and learn electronically is moderate with an arithmetic mean of 2.66.
D. (X4): The results showed that the extent of video and audio internet technologies on student education has a strong impact on the architectural educational process, with an arithmetic mean of 3.48.
E. (X5): The results showed that the extent of Internet technologies such as PDF lectures and others on student education have a moderate impact on the architectural educational process with an arithmetic mean of 3.
F. (X6): The results showed that the teacher's conviction in teaching face to face with students is strong in the field of architectural education with an arithmetic mean of 4.57.
G. (X7): The results showed that the teaching's degree of conviction in e-learning with students is weak in the field of architectural education, with an arithmetic mean of 2.52.
H. (X8): The results showed that the teacher's conviction in blended learning with students is strong in the field of architectural education with an arithmetic mean of 3.6.

Table 1: Descriptive statistics

		N	Minimum	Maximum	Mean	Std. Deviation	Impact
How much do you want to communicate with students directly (face to face) in light of the Corona pandemic?	X1	42	1.00	5.00	3.4286	1.15067	strong
How much do you want to communicate with students remotely (e-learning) in light of the Corona pandemic?	X2	42	1.00	5.00	2.8571	1.29862	moderate
To what extent students desire to communicate and learn electronically?	X3	42	1.00	5.00	2.6667	1.09693	moderate
What is the impact of internet technologies on students' education (video and audio lectures)	X4	42	2.00	5.00	3.4762	1.01784	strong
What is the impact of internet technologies on students' education (pdf lectures, etc.)	X5	42	1.00	5.00	3.0476	1.18841	moderate

How convinced are you with traditional education (face to face)	X6	42	3.00	5.00	4.5714	.59028	strong
What is the extent of your conviction in e-learning (distance)	X7	42	1.00	5.00	2.5238	.96873	Weak
What is the extent of your conviction in blended learning	X8	42	1.00	5.00	3.6190	1.01097	strong
	Valid N (listwise)	42					

Second: Comparison of Education Methods: It shows the results of the questionnaire for a comparison of types of education in Iraq in light of the Corona pandemic, as follows:

A. Which method is the most planned and organized methods of the educational process in Iraq: The results of the questionnaire showed that 71.4% of the most planned and organized face-to-face learning of the educational process in Iraq has been based on this system for decades, followed by varied learning by 14.3% because the respondents believe that it is the best possible system that it fits with all circumstances that require future planning and organization to be a suitable alternative to the traditional education system, followed by blended learning by 9.5%, and hybrid learning by 4.8%, and e-learning didn't get any percentage (Fig. 1).

B. Which method is most connected with students and has an impact on strengthening the relationship between the student and the teacher: The results of the questionnaire showed that 76.2% of the traditional education system (face to face) is the most contact method between the student and the teacher, followed by the varied learning by 19% for its flexibility in dealing between the student and the teacher and the possibility of using it for other means? Different communication, which allows it to be a future system to increase communication and the relationship between the student and the teacher (Fig. 2).

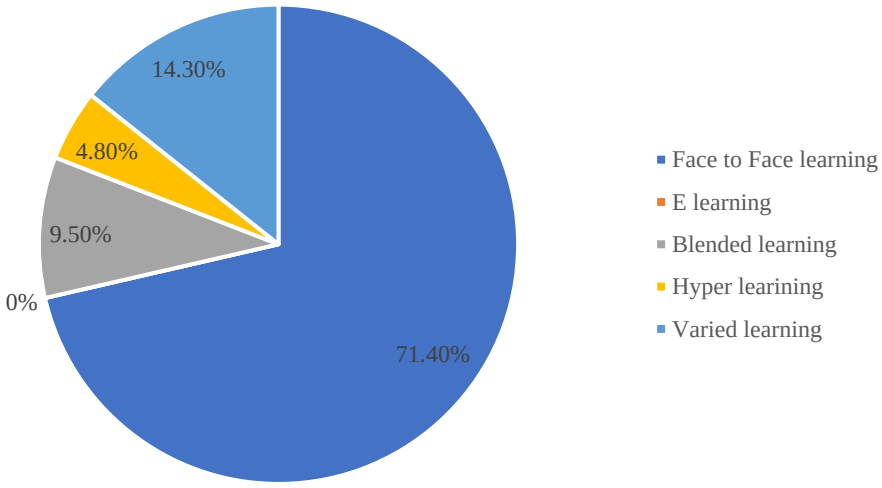

Figure 1. Result of question 1

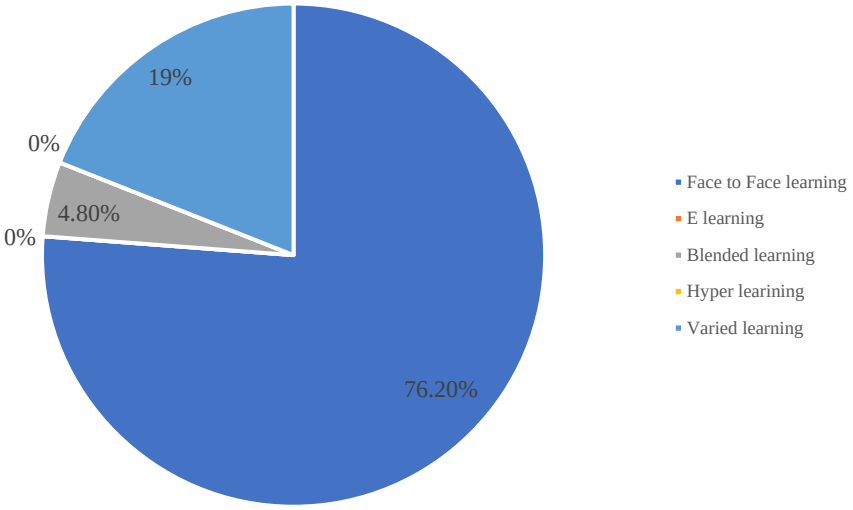

Figure 2. Result of question 2

C. Which method is the most and best documented for the process of preserving theoretical and practical materials: The results of the questionnaire indicated that 61.9% of the traditional education system (face to face) is the most and best documented method for the preservation of theoretical and practical materials, followed by e-learning by 19%, varied learning by 14.3%, 4.8% for blended learning (Fig. 3)?

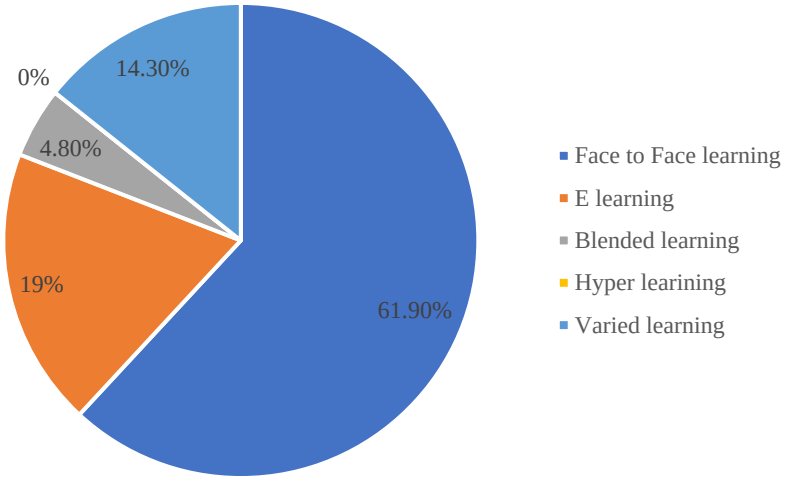

Figure 3. Result of question 3

D. Which is the most and best organized method for holding meetings between students and instructors: The results of the questionnaire indicated that 57.1% that the traditional education system (face to face) is the most and best organized method for holding meetings between students and instructors, followed by varied learning by 19%, followed by blended learning by 14.3%, and e-learning at 9.5% (Fig.4).

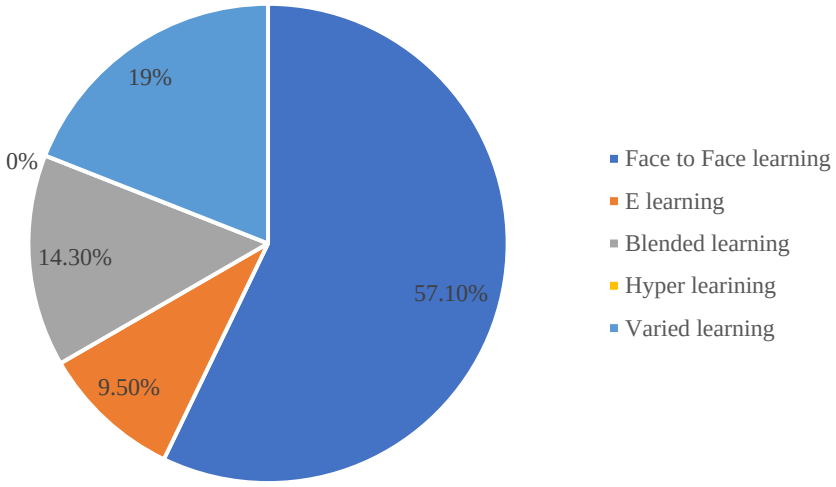

Figure 4. Result of question 4

E. Which is the most and best organized way to give theoretical lectures to students: The results of the questionnaire showed that 47.6% that the traditional education system (face to face) is the most and best organized way to give theoretical lectures to students, followed blended learning by 23.8%, followed by varied learning by 14.3%, followed e-learning by 9.5%, and finally a hybrid learning by 4.8% (Fig. 5).

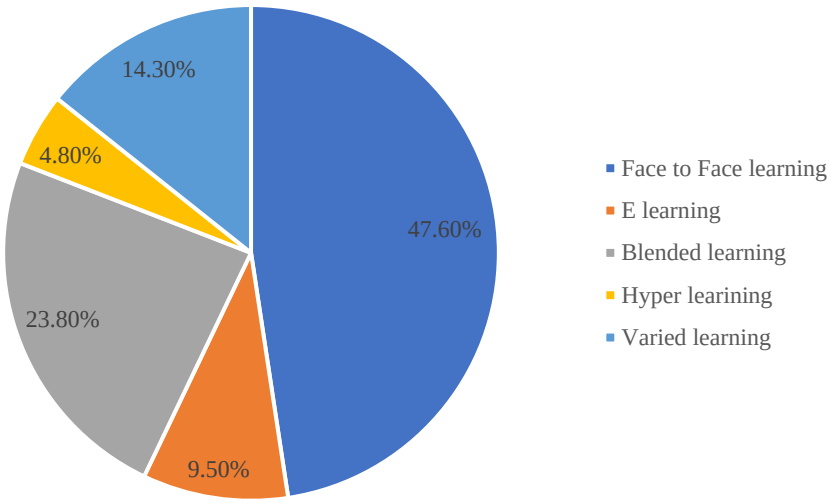

Figure 5. Result of question 5

F. Which is the most and best organized way to give practical lectures to students: The results of the questionnaire showed that 71.4% of the traditional education system (face to face) is the most and best organized way to give practical lectures to students, followed by varied learning by 14.3%, blended learning by 9.5%, and finally, hybrid learning by 4.8 % (Figure 6).

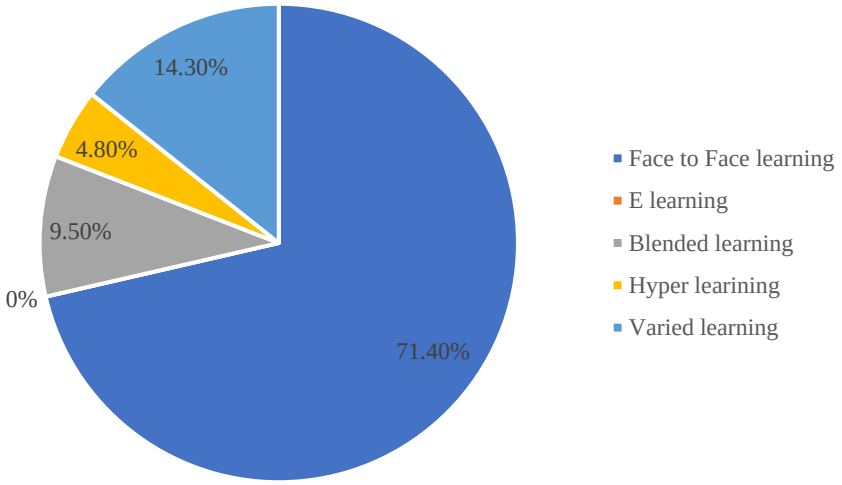

Figure 6. Result of question 6

G. Which methods have the most influence on group learning for students: The results of the questionnaire showed that 76.2% of the traditional education system (face to face) is the method that is more and better affected by the group learning of students, followed by varied learning by 19%, and blended learning by 4.8% (Fig. 7).

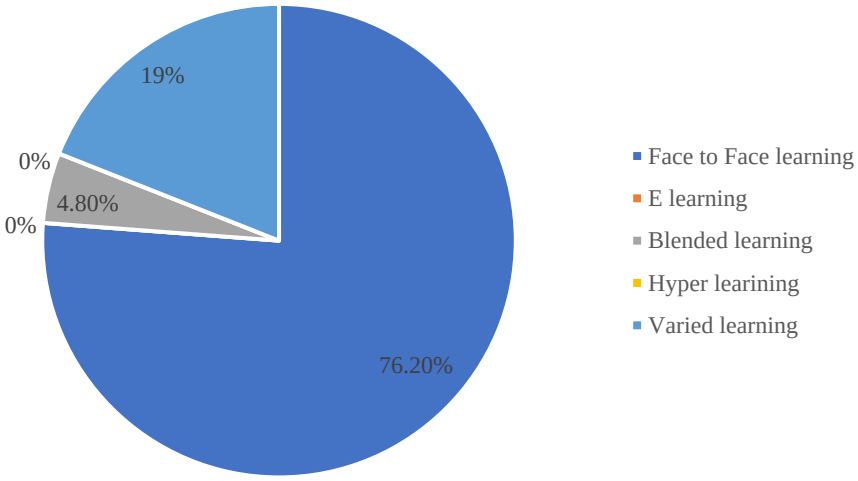

Figure 7. Result of question 7

H. Which is the best way of teaching for instructors: The results of the questionnaire showed that 57.1% of the traditional education system (face to face) is the most and the best way to teach for instructors, followed by both varied and blended learning by 19% for each of them, and finally e-learning by 4.8% (Fig. 8).

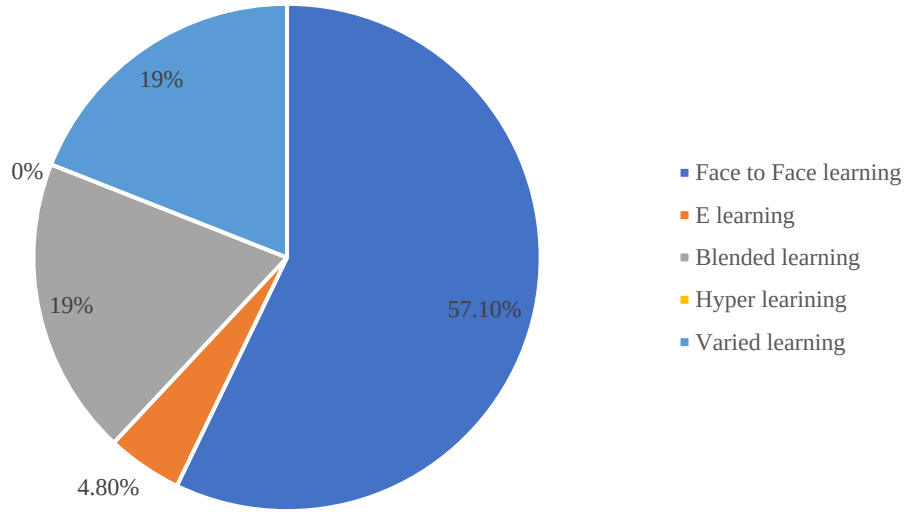

Figure 8. Result of question 8

I. Which is the best way to teach for students: The results of the questionnaire showed that 57.1% of the traditional education system (face to face) is the most and the best way to teach for students, followed by varied learning by 23.8 and by 9.5% for both blended and e-learning (Fig. 9).

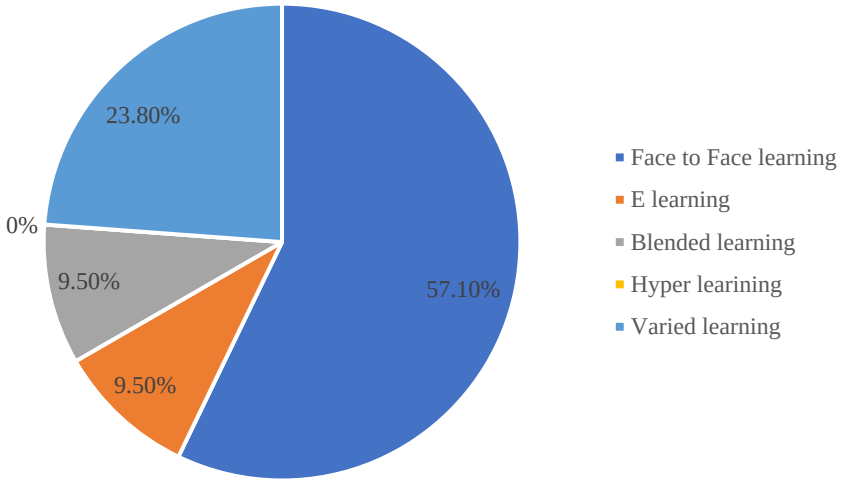

Figure 9. Result of question 9

J. Which educational methods help students to develop skills: The results of the questionnaire indicated that 38.1% of varied learning helps students develop skills, followed by blended learning by 33.3%, and finally traditional education (face to face) by 28.6% (Fig. 10).

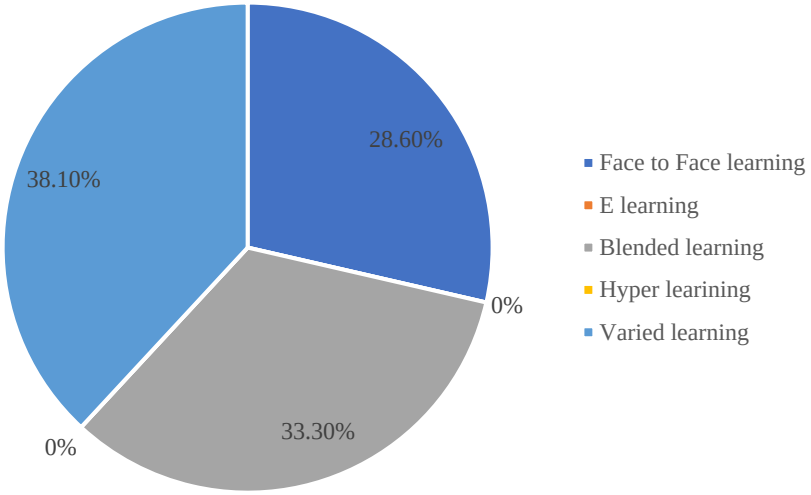

Figure 10. Result of question 10

K. Which is the most flexible educational methods: The results of the questionnaire showed that the results of the questionnaire 42.9% that blended learning is the most flexible, followed by varied learning by 33.3%, followed by the traditional system (face to face) by 14.3%, and by 4.8% for both e-learning and hybrid learning (Fig. 11).

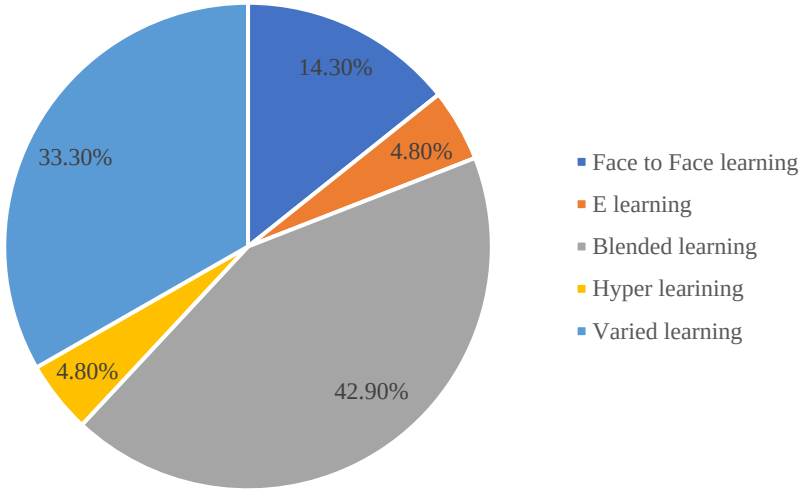

Figure 11. Result of question 11

L. Which is the highest quality educational methods: The results of the questionnaire showed that 66.7% of the traditional education system (face to face) is the highest quality, followed by the varied learning by 19%, by 9.5% for blended learning, and finally e-learning by 4.8% (Fig.12).

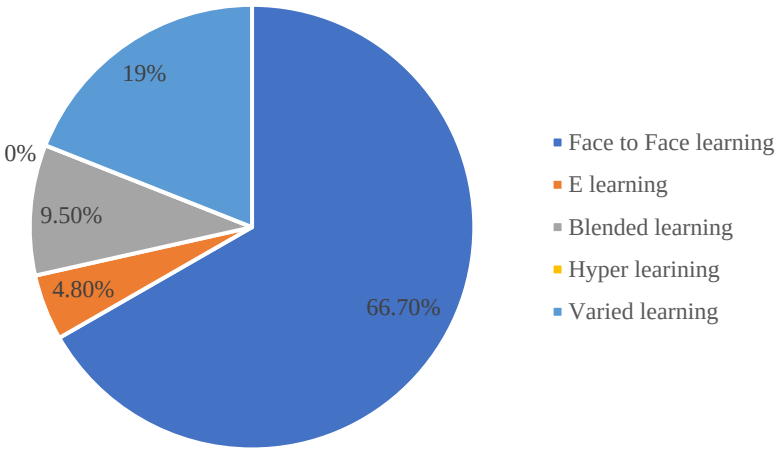

Figure 12. Result of question 12

M. Which educational methods improve educational outcomes: The results of the questionnaire indicated that 57.1% of the traditional education system (face to face) improves educational outcomes, followed varied learning and blended learning by 19% each, followed hybrid learning by 4.8% (Figure 13).

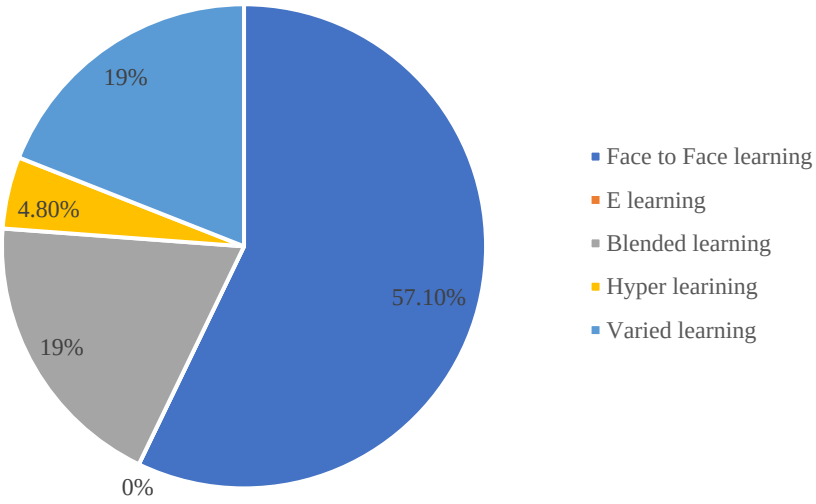

Figure 13. Result of question 13

N. Which educational methods are the most interactive in presenting educational content: The results of the questionnaire indicated that 61.9% of the traditional education system (face to face) is the most interactive in presenting educational content, followed by the varied learning and the blended learning by 19% each (Figure 14)?

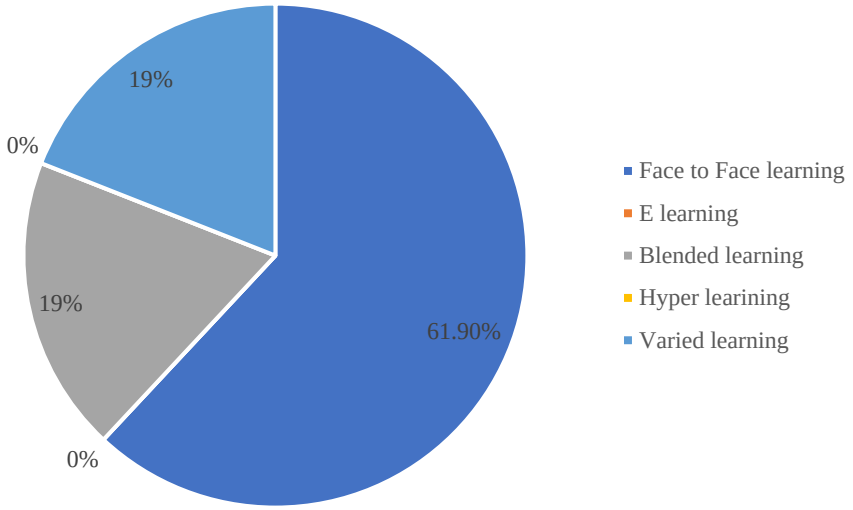

Figure 14. Result of question 14

O. Is there a benefit to the inverted activities in the blended learning: the answer was "No" by 61.9%, while "Yes" by 38.1% (Fig. 15)?

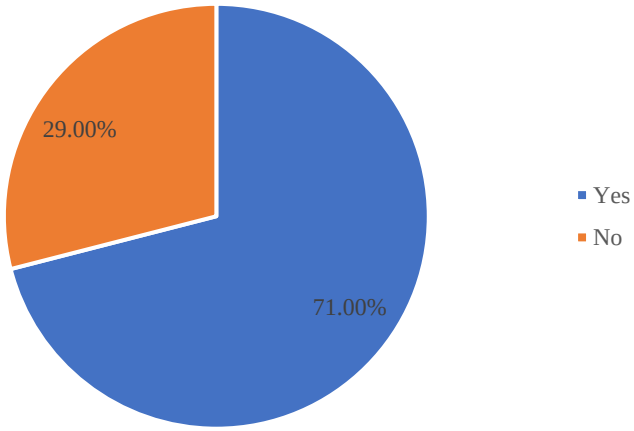

Figure 15. Result of question 15

P. Is there a benefit to merging traditional education with the potential of educational platforms: The answer was “No” by 29%, while “Yes” was 71% (Fig. 16)?

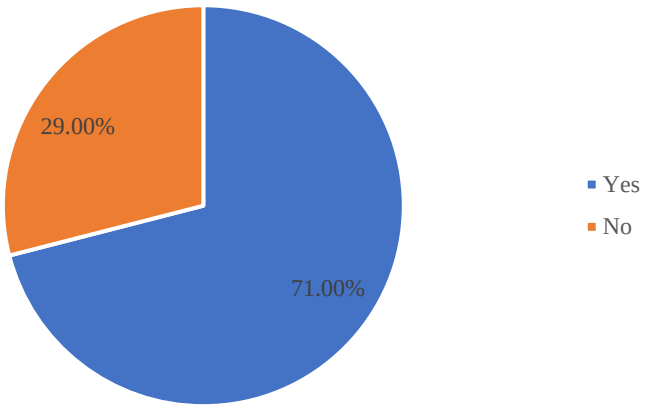

Figure 16. Result of question 16

7. Discussion

The results of the questionnaire showed that instructors prefer face-to-face education and move away from e-learning, as face-to-face education increases education to students, while e-learning plays to increase learning for students. The results of the questionnaire show that the traditional educational system (face-to-face) is the system adopted in Iraq for different levels of education and according to the results of the questionnaire is the dominant in the entire educational process in Iraq, which has created a gap during the emergence of the Corona pandemic and the difficulty of completing the school years traditionally, hence the educational authorities to have adopted e-learning to complete the school years, faced many technical, legal and qualifying problems for both the students and instructors. The questionnaire results show that the alternative to traditional learning is the varied learning that has shown that it is more important, in developing students' skills, for being more qualitative and flexible, and works to improve educational outcomes.

8. Conclusions

A. Discover the new learning method called "varied learning"
B. The architectural learning could be easily done by using the varied learning method.
C. Varied learning gives flexibility to students and instructors in temporal and spatial dimensions, allowing students and instructors to interact better.
D. A system that can be applied in critical times that requires the integration of a face-to-face learning system with various electronic learning.
E. Increases and improves educational outcomes and improves students 'intellectual and applied skills.
F. Blended learning is the combination of distance and attendance learning. As for varied learning, variety in the type of presentation, i.e., the lecturer can present his lecture electronically in the presence of some students, and the attendance of students depends on their commitments. The lecturer can give a recorded electronic lecture or a recorded attendance, regardless of the presence of students in the hall, and they can be present electronically synchronously or asynchronously.
G. E-learning is a modern teaching method that can be in the presence of students and lecturers in one place, or in two different places at the same time or at two different times.
H. While distance learning is one of the learning strategies in which the student and the lecturer cannot be in the same place and can be synchronous or asynchronous.

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