

Impact of the Virtual, Classical Classroom, And Blended Learning Styles on Students' Satisfaction in Higher Education in Iraq Quran Science Department College of Education for Human Sciences

أثر أسلوبي التعلم الافتراضي والتقليدي والمدمج على رضا الطلبة في التعليم العالي في العراق قسم علوم القرآن الكريم كلية التربية للعلوم الإنسانية

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ABSTRACT

During the pandemic crisis of covid_19, the importance of electronic learning increased greatly and becomes necessary for the continuation of the educational process in schools and universities around the world. This study aimed to compare students' satisfaction and preferences between virtual learning, classical classroom learning, and blended learning in higher education. The authors develop the survey questionnaire and the internal consistency of the questions was tested by the Cronbach Alpha test. Data were collected from 204 students at Anbar University in Iraq College of Education for Human Sciences/ Quran department through a questionnaire-based study using Google forms. We have considered six questions of the Likert scale satisfaction questionnaire for the three learning styles. The Analysis of Variance (ANOVA) was used to determine if there are any significant differences between the three learning styles. The main findings reflect that Virtual learning has the highest impact on students' satisfaction among the other styles. This study will be helpful for the decision-makers of Anbar University in developing programs and policies for using E-learning resources. Therefore, this study shows that virtual learning has become prevalent and more popular among students of Anbar University. The scores for satisfaction showed that the virtual learning style expressed greater satisfaction than the classical classroom and the blended learning styles.

الخلاصة

خلال أزمة جائحة كوفيد_19، تزايدت أهمية التعلم الإلكتروني بشكل كبير وأصبح ضرورياً لاستمرار العملية التعليمية في المدارس والجامعات حول العالم. هدفت هذه الدراسة إلى مقارنة رضا الطلاب وتفضيلاتهم بين التعلم الافتراضي، والتعلم في الفصول الدراسية الكلاسيكية، والتعلم المدمج في التعليم العالي. قام المؤلفون بتطوير استبيان المسح وتم اختبار الاتساق الداخلي للأسئلة عن طريق اختبار كرونباخ ألفا. تم جمع البيانات من 204 طلاب في جامعة الأنبار في كلية التربية للعلوم الإنسانية / قسم القرآن الكريم في العراق من خلال دراسة قائمة على الاستبيان باستخدام نماذج جوجل. لقد نظرنا في ستة أسئلة من استبيان الرضا بمقياس ليكرت لأنماط التعلم الثلاثة. تم استخدام تحليل التباين (ANOVA) لتحديد ما إذا كان هناك أي فروق ذات دلالة إحصائية بين أساليب التعلم الثلاثة. تعكس النتائج الرئيسية أن التعلم الافتراضي له التأثير الأكبر على رضا الطلاب من بين الأساليب الأخرى. وستكون هذه الدراسة مفيدة لصناع القرار في جامعة الأنبار في تطوير برامج وسياسات استخدام مصادر التعلم الإلكتروني. ولذلك تظهر هذه الدراسة أن التعلم الافتراضي أصبح منتشراً وأكثر شعبية بين طلبة جامعة الأنبار. أظهرت درجات الرضا أن أسلوب التعلم الافتراضي عبر عن رضا أكبر من الفصول الدراسية الكلاسيكية وأساليب التعلم المدمج.

Keywords**الكلمات المفتاحية**

Virtual Learning, classical classroom Learning, blended learning, ANOVA, Student satisfaction, covid_19 pandemic.

التعلم الافتراضي , التعلم في الصفوف التقليدية , التعلم المدمج , تحليل التباين , رضا الطلبة , جائحة كوفيد-19

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1. INTRODUCTION

Educational institutions and educators are looking for integrated ways to elevate education to another level, so they indulged in innovative ways to provide virtual or mixed lessons and were not limited to learning the old classic classrooms. Hence[1], identifies Virtual Learning (VL) as a supportive tool with multiple functions - communication and information, comfort, cooperation, and freedom to learn. Whereas, Classical Classroom Learning (CCL) is defined as the actions a teacher takes to create a supportive academic environment for learners [2].

The importance of virtual learning has emerged greatly during the Covid-19 epidemic, as it has become an important necessity in the continuity of the educational process in schools and universities around the [3]. Therefore, during and before the entry of the epidemic, students in Iraq experienced three types of learning started with the classical classroom learning which was the predominant and basic method for students in the pre-epidemic period, but after the spread of the epidemic and the entry of the comprehensive ban for long periods, the situation changed dramatically, which led to completely transform the learning into the electronic type. This situation continued until the blended learning was examined after the improvement in the health situation by reducing the number of infections, then it became possible for students to go to schools and universities for a few days of the week to perform their duties in addition to performing the other works through the virtual learning system. For this reason, this study focuses on comparing the students' satisfaction with virtual learning, classic classroom learning, and blended learning to adopt the most useful teaching style for the students the next time. It is worth noting, that defining the learning process for learners - if they prefer blended learning: a combination of VL and CCL, Fig 1 shows the three learning types. According to Gray, [4], blended learning may facilitate higher education in the new student market through off-campus, off-campus, or remote education.

Student satisfaction is an excellent determinant of students' overall academic experience and achievements [5]. It has an importance that can assist in measuring the thorough performance in an online course. Various techniques are available to measure student satisfaction. Survey questionnaires are typically a common procedure for learner satisfaction measurement. A wide range of tools was developed and used to measure student satisfaction such as Students' Evaluations of Educational Quality [6], National Student Survey [7], and Course Experience Questionnaire [8].

The organization of this paper is as follows. Section 2 gives a brief overview of related works. The method used and the survey questions are discussed in section 3. Section 4 offers the results and discussion. Finally, section 5 concludes the paper with pointers for future work.

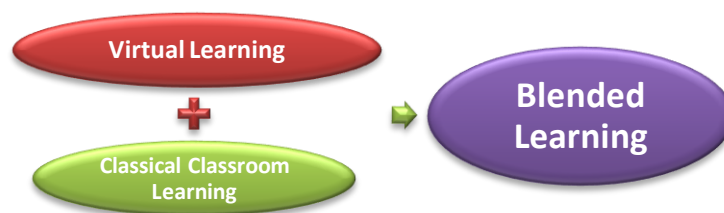


Fig. 1. The three types of learning modes

2. RELATED WORK

There has been a considerable discussion over the last decade about whether online learning has been better than traditional education and vice-versa. Whilst, the blended learning concept has become the norm, especially in traditional universities, which can no longer blind their eyes to the educational revolution brought by information and communication technologies [8]. Different approaches have been identified in the literature about identifying the student's satisfaction with the learning styles.

[9] examined the impact of learning style adaptation on student satisfaction. In an integrated e-learning environment, an adaptive approach was applied, which includes the development of personalized learning pathways depending on learning preference. Sixty undergraduate students participated in a controlled experiment in this learning environment to assess their satisfaction with the system. The findings show that the students were largely satisfied with their educational

experience. Additionally, tailoring learning material to a student's preferred learning style can increase student satisfaction, experience, and inspiration.

Another study, which was implanted by [10], provides a three-way comparison of online, face-to-face, and blended teaching modalities; this research aimed to see if there were any disparities in student learning results and course satisfaction between the three teaching modalities in an undergraduate Early Education course. The Student Opinion Questionnaire (SOQ) was used to assess course satisfaction across the three teaching modalities, while the Constructivist On-Line Learning Environment Survey (COLLES) was used to assess the online and blended modalities. Students of these three modalities were similarly satisfied with their learning outcomes, according to these studies.

Similarly, [1] compared the roles of virtual learning, classical classroom learning, and blended learning in higher education. Besides, the researchers aimed to determine how learners learn when the two learning types are combined – virtual and classical classroom learning. The researchers employ a quantitative approach; the data was collected from an online questionnaire and convenient sampling. The key results show that there is a strong relationship between gender and CCL, with female respondents having a higher tendency for CCL than male respondents. In addition, VL has a strong relationship with the CCL and Blended Learning.

Further, [11] assessed how satisfaction with e-learning in dental students was affected by learning styles and general self-efficacy (GSE). The researchers used three questionnaires including the index of Solomon and Feld styles of learning, a general questionnaire on self-efficacy, and an online education satisfaction questionnaire. The required information will be found according to students' preferences and types of learning. Students may find their acceptable material depending on their interests and their type of studying, which then satisfies them and eventually contributes to academic achievement. The correlation between satisfaction and the learning style dimensions has shown a significant relationship with satisfaction levels between the active components of information processing. A relatively strong correlation in the global dimension has been found in the perception dimension.

3. METHODOLOGY

The quantitative survey method was used in this research to identify the students' satisfaction with the three learning styles. The total number of the involved students in this research was 214 students. The number of males was 91 students constituting 42.5% of the total percentage, whereas the total number of females was 123 students and their percentage was 57.5%. The ages of the participant students are ranging from 19 to 26 years old. The participants in this survey are from Anbar University; mostly from the faculty of computer science and information technology.

Before sending the questionnaire, the learning types were defined and explained to the participant students whether they prefer any learning type. The online questionnaire was designed using "Google Forms", it consists of four parts the first part was for the demographic features such as age, gender, and student stage in the faculty. The other three parts were for the questions about the virtual, Classical classroom, and blended learning styles. The questionnaire was developed based on the Likert scale ranging from strongly disagree (1) to strongly agree (5).

IBM SPSS Statistical Software (version 26) was used to analyze the collected data. Descriptive analysis, ANOVA, and multiple comparisons of LSD were used to get the results. It is worth noting that each question of the survey was selected carefully to reflect the satisfaction of the students with each class of learning. The list of the six survey questions for the classical classroom learning below was used for each of the three learning styles virtual, classical classroom, and blended to find out the differences in means.

- Classical classroom learning saves me a lot of time and effort when doing my college homework
- Classical classroom learning does not restrict my movement and provides me with access to all educational materials.
- Classical classroom learning allows me to share knowledge with my peers.
- In Classical classroom education, I do not have any difficulties performing the practical side of my studies
- Classical classroom learning provides teachers flexibility in how educational materials are presented.
- Classical classroom learning is very appropriate to the nature of my study.

4. RESULT AND DISCUSSION

Until all Students completed the questionnaire, all the responses of the questionnaire were kept blinded. The collected data were labeled in the SPSS statistical software to be ready for statistical tests. The statistical tests started with performing statistical descriptive analysis and subsequently applying the Cronbach Alpha test to find the consistency and reliability of all the scale items for the virtual learning, classical classroom, and blended learnings. A one-way ANOVA test and the multiple comparison LSD test to compare the students' satisfaction with the learning styles.

The standard deviations in Table 1 show reasonable values for the deviations of each type of learning style as the three values of the deviations are relatively close. We note that there was a difference between the means for the three types of learning styles. The results show that the mean value for virtual learning was the highest among the others (Mean=3.3830). While the students' satisfaction with the classical classroom style comes in the second level (Mean=3.1563). Finally, the last and the third level was for the blended learning style (Mean=3.1293). Fig 2 depicts these differences in mean values. The obtained results revealed that the virtual learning style was the most preferable learning method among students as it has the highest degree of satisfaction while the second level was for classical classroom learning and the least preferred style was for blended learning.

TABLE I. STATISTICAL DESCRIPTIVE OF THE LEARNING STYLES

	N	Mean	Std. Deviation
Virtual	94	3.3830	1.37426
Blended	80	3.1563	1.43129
Classical			
Blended	40	2.4792	1.28704
Total	214	3.1293	1.41766

Understanding the highest satisfaction level for virtual learning among students of the College of Computers at Anbar University may be due to several reasons. Comfort, family obligations, and health concerns are also among the reasons why students pursue higher education online. Online lessons appear to be contributing to their increase and popularity by offering convenience and flexibility [12][13]. Besides, the interaction between students and teachers was also found to be strongly linked to the online learning environment and performance expectations, which in turn have contributed to student satisfaction [14][15].

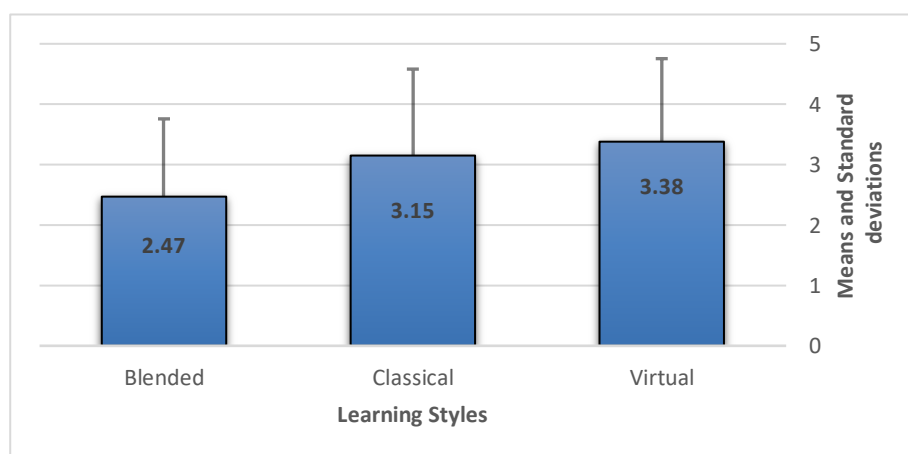


Fig .2. Means plots for the three learning styles

On the other side, the lack of satisfaction with the blended learning among the college students, among these reasons was due to the unwillingness of a student to be distributed between two different types of learning methods including the electronically and classically. This method of teaching can generate distraction and confusion for the student and might affect the educational level.

Although blended learning has been recognized as having many advantages (e.g., ease of revision, access to knowledge content, instructional richness, cost-effectiveness, personal agency, and social interaction [16], inadequate learning satisfaction remains a barrier to the successful adoption of blended learning [17] Indeed [18] has shown that it was difficult for learners to adapt to blended learning environments due to possible computer and internet connectivity difficulties, learners' abilities and convictions in using technology, participants interaction, blended course design, and blended environmental integration [19].

Besides, Cronbach Alpha was an indicator for the consistency of all items on one scale; the acceptable value for the test was above 0.70. Therefore, the value for the Cronbach alpha in this research was 0.91, which was a very high level for the consistency between the items of the scale for the virtual, classical classroom, and blended learnings.

TABLE II. ANALYSIS OF VARIANCE (ANOVA) OF THE STUDENTS' RESPONSES

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	138.085	2	69.043	36.241	.000
Within Groups	2440.454	1281	1.905		
Total	2578.539	1283			

Table 2, shows the existence of differences between the types of education that were tested at $p < 0.05$, but this difference was general and does not detail any of the three learning styles. Therefore, a multiple comparison LSD (Least Significant Difference) test was applied to identify these differences, as shown in Table 3.

In the second phase of the statistical analysis, the data were tested using multiple comparisons of LSD for the learning styles to provide detailed differences in the perceived satisfaction of students toward the three learning styles. As shown in Table 3, the mean difference for satisfaction between the virtual and classical classroom styles was 0.22673 and the standard error was 0.08571 whilst the difference between the virtual and blended learning styles was 0.90381, and the standard error was 0.10638. Further,

TABLE III. MULTIPLE COMPARISONS OF LSD FOR THE LEARNING STYLES

(I) learning style	(J) learning style	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Virtual	Classical	.22673*	.08571	.008	.0586	.3949
	Blended	.90381*	.10638	.000	.6951	1.1125
Classical	Virtual	-.22673*	.08571	.008	-.3949	-.0586
	Blended	.67708*	.10912	.000	.4630	.8912
Blended	Virtual	-.90381*	.10638	.000	-1.1125	-.6951
	Classical	-.67708*	.10912	.000	-.8912	-.4630

*. The mean difference is significant at the 0.05 level

the mean difference between the classical classroom and blended styles was about 0.67708 with a standard error was 0.10912.

Besides, the values of significance show that the values are significant between all the learning styles as all the related probabilities are less than 0.05 ($p < 0.05$).

Therefore, the findings revealed a recognized difference in the perceived satisfaction of students across the three learning styles the VL, CCL, and the BL but then the VL was the most preferred learning style among the students. This result presented a valuable outcome as it represents the basis for decision-makers of the Anbar University for planning for future learning styles.

5. CONCLUSION

The main purpose of this study was to find out the students' satisfaction with the learning styles which are virtual learning, classical classroom learning, and blended learning. In other words, was to find which learning style/s was the most preferred by the Anbar University students.

The outcome of this study revealed the existence of the differences between the preferences of the student in the most convenient learning style. The results revealed that the virtual learning style was the most preferred style of computer science and information technology at Anbar University. On the other side, classical classroom learning comes in the second level of the preference of students, and the value of preference of this style was so close to virtual learning. The results demonstrated that the blended learning style was less preferred among the University students and comes at the lowest level with a considerable difference between virtual learning and classical classroom learning.

It is recommended for future work, is to empower the achieved outcome by extending the scope of this research by considering the following two points. The first point is to give a role to the faculty's lecturers and involve them in the research to assist them in developing their teaching materials for an efficient and effective learning system. Another point is that there are fundamental differences in the study between colleges through relying on the practical side or applied study more than relying on the theoretical study. Therefore, there must be differences in the learning style that achieves the highest benefit. Therefore, this research has to be extended to include other colleges at Anbar University to find out their preferences and differences.

Conflicts Of Interest

The paper explicitly states that there are no conflicts of interest to disclose.

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References

- [1] Alshammari, M., Anane, R., & Hendley, R. J. (2015). Students' satisfaction in learning style-based adaptation. In 2015 IEEE 15th International Conference on Advanced Learning Technologies (pp. 55–57). IEEE. Retrieved from <https://doi.org/10.1109/ICALT.2015.56>
- [2] Ashby, A., Richardson, J. T., & Woodley, A. (2011). National student feedback surveys in distance education: An investigation at the UK Open University. *Open Learning: The Journal of Open, Distance and e-Learning*, 26(1), 5–25. Retrieved from <https://doi.org/10.1080/02680513.2011.538560>
- [3] Baherimoghadam, T., Hamedani, S., Mehrabi, M., Naseri, N., & Marzban, N. (2021). The effect of learning style and general self-efficacy on satisfaction of e-learning in dental students. *Research Square*. Retrieved from <https://doi.org/10.21203/rs.3.rs-132702/v1>
- [4] Banoor, R. Y., & Issack, S. M. (2020). Learner satisfaction, engagement and performances in an online module: Implications for institutional e-learning policy. *Research Square*. Retrieved from <https://doi.org/10.21203/rs.3.rs-63395/v1>
- [5] Bonk, C. J., Olson, T. M., Wisner, R. A., & Orvis, K. L. (2002). Learning from focus groups: An examination of blended learning. *International Journal of E-Learning & Distance Education*, 17(3), 97–118. Retrieved from <https://www.ijede.ca/index.php/jde/article/view/299>
- [6] Dyrbye, L., Cumyn, A., Day, H., & Heflin, M. (2009). A qualitative study of physicians' experiences with online learning in a master's degree program: Benefits, challenges, and proposed solutions. *Medical Teacher*, 31(2), e40–e46. Retrieved from <https://doi.org/10.1080/01421590802366129>
- [7] Evertson, C. M., & Weinstein, C. S. (Eds.). (2013). *Handbook of classroom management: Research, practice, and contemporary issues*. Routledge. Retrieved from <https://doi.org/10.4324/9780203874783>
- [8] Gray, K., Chang, S., & Kennedy, G. (2010). Use of social web technologies by international and domestic undergraduate students: Implications for internationalising learning and teaching in Australian universities. *Technology, Pedagogy and Education*, 19(1), 31–46. Retrieved from <https://doi.org/10.1080/14759390903579208>
- [9] Kokko, T., Pesonen, H., Kontu, E., & Pirttimaa, R. (2015). Why study online in upper secondary school? Qualitative analysis of online learning experiences. *Human Technology*, 11(1). Retrieved from <https://ht.csr-pub.eu/index.php/ht/article/view/162>
- [10] Landrum, B., Bannister, J., Garza, G., & Rhame, S. (2020). A class of one: Students' satisfaction with online learning. *Journal of Education for Business*. Retrieved from <https://doi.org/10.1080/08832323.2020.1757592>
- [11] Marsh, H. W. (1982). SEEQ: A reliable, valid, and useful instrument for collecting students' evaluations of university teaching. *British Journal of Educational Psychology*, 52(1), 77–95. Retrieved from <https://doi.org/10.1111/j.2044-8279.1982.tb02505.x>
- [12] Osguthorpe, R. T., & Graham, C. R. (2003). "Blended learning environments: Definitions and directions." — PDF version at LearnTechLib: Retrieved from <https://www.learntechlib.org/p/97576/>
- [13] Radha, R., Mahalakshmi, K., Kumar, V. S., & Saravanakumar, A. (2020). E-learning during lockdown of COVID-19 pandemic: A global perspective. *International Journal of Control and Automation*, 13(4), 1088–1099. Retrieved from [Research Gate](https://www.researchgate.net/publication/358111111).
- [14] Ramsden, P. (1991). A performance indicator of teaching quality in higher education: The course experience questionnaire. *Studies in Higher Education*, 16(2), 129–150. Retrieved from <https://doi.org/10.1080/03075079112331382944>
- [15] So, H., & Brush, T. A. (2008). Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors. *Computers & Education*, 51(1), 318–336. Retrieved from <https://doi.org/10.1016/j.compedu.2007.05.009>
- [16] Suleri, J., & Suleri, A. (2019). Comparing virtual learning, classical classroom learning and blended learning. *European Journal of Sustainable Development Research*, 3(1), 1–8. Retrieved from <https://doi.org/10.20897/ejosdr/3970>

- [17] Virtanen, M. A., Kääriäinen, M., Liikanen, E., & Haavisto, E. (2017). The comparison of students' satisfaction between ubiquitous and web-based learning environments. *Education and Information Technologies*, 22(5), 2565–2581. Retrieved from <https://doi.org/10.1007/s10639-016-9561-2>
- [18] Wu, J., Tennyson, R. D., & Hsia, T. (2010). A study of student satisfaction in a blended e-learning system environment. *Computers & Education*, 55(1), 155–164. Retrieved from <https://doi.org/10.1016/j.compedu.2009.12.012>
- [19] Yen, S., Lo, Y., Lee, A., & Enriquez, J. (2018). Learning online, offline, and in-between: Comparing student academic outcomes and course satisfaction in face-to-face, online, and blended teaching modalities. *Education and Information Technologies*, 23(5), 2141–2153. Retrieved from <https://doi.org/10.1007/s10639-018-970>