Using blended learning during COVID-19: The perceptions of school teachers in Jordan

Raghad Alsarayreh**, Karak University College, Al-Balqaa' Applied University, Jordan
https://orcid.org/0000-0003-0258-863X

Abstract

The study aims at identifying the perceptions of using blended learning during COVID 19 Pandemic in Jordan as reported by secondary school teachers in Jordan. It also aims at investigating the possible significant differences in those perceptions attributed to gender and school type (government schools, private schools). A quantitative method was adopted in which a questionnaire was used to collect the data from (161) science teachers (92 females and 69 male teachers) working at secondary schools at Karak governorate. The questionnaire has been distributed to 147 science teachers from public schools and 14 teachers from private schools. The results of this study revealed medium degree of using blended learning among the participants. It also showed no statistically significant differences attributed to the gender variable and the type of school.

Keywords: Blended learning strategy, COVID-19 pandemic, secondary school, Jordanian teachers.

* ADDRESS FOR CORRESPONDENCE: Raghad Alsarayreh , Karak University College, Al-Balqaa' Applied University, Jordan
 E-mail address: Ragad.Sarayreh@bau.edu.jo

1. Introduction

At the beginning of 2020, many countries worldwide have closed most sectors including the education sector due to unfamiliar situations caused by outbreak COVID-19 pandemic and Jordan was not an exemption from these changes. The methods of learning are extremely important topic that should be discussed in light of combating the pandemic. The teachers seek to adapt to new circumstances of teaching and learning during these unfamiliar periods to better serve their students. Diab and Elgahsh (2020) pointed out that to make the best use of technology in education in this period, e-learning has emerged as a vital solution to the education process. E-Learning is a term that combines the fields of learning through the Internet, training through the web, and teaching using technology. It includes two basic types: synchronous e-learning and asynchronous e-learning, in which they share a spatial separation between the teacher and the learner on an aspect, and the learners from each other on the other aspect (Cortez, 2020).

Despite the many positive aspects of e-learning, it is not without drawbacks that limit its effectiveness, as this type of learning lacks direct communication and the real interaction that is supposed to occur between all the elements of the educational learning process as a whole (Diab & Elgahsh, 2020). The communication through various means of technology will remain incomplete communication, unable to establish the necessary social and human relationships for the integration of the personality of the individual in all its aspects. This may lead to a large gap that prevents the achievement of the objectives of effective education and learning (Cortez, 2020; Rasmitadila et al., 2020). Al-Heila (2016) indicated that psychological needs are not less important than material needs. He indicates that to achieve the effectiveness of the learner within the educational environment, the goals of education should not be limited only to arming learners with knowledge and science, but they should go beyond that. The real challenge facing the field of education is structure the integrated and balanced personality of the learner in all its aspects.

One of the duties of the educational systems is to work on structuring the integrated personality of the learners that enables them to find a balance between themselves and their worlds surrounding them, so that they can keep abreast of the developments of their era with skill and ingenuity without having to abandon their roots to achieve all this. it is also necessary to develop new curricula capable of producing an educated person in harmony with himself, interacting with his world, influential and influenced by him, so that he can advance his nation, develop himself and move forward (Marei & Al-Heila, 2016).

In view of the difficulty of achieving all of this through technical equipment, and with the presence of spatial barriers, the concept of blended learning appeared, trying to avoid the negatives of technology, directing it in the correct direction that increases its effectiveness, and integrating with traditional learning to increase its efficiency and improve its output (AlShahrani & Talaue, 2018). Blended learning is not limited to the use of technology, but rather is a redesign of all the pillars of the educational process, and the restructuring of the role of each of the learner and teacher, and even the educational position as a whole (Saboowala & Manghirmalani-Mishra, 2020). E-learning, no matter how important it is, cannot replace the place of traditional learning that remains to have the greatest impact, regardless of the variety and change of modern learning methods. Blended learning is based on maximizing the advantages of traditional learning and e-learning to attempt avoiding the downsides of both (Bower, Dalgarno, Kennedy & Kenney, 2015; Diab & Elgahsh, 2020).

Most of the technical tools constitute a great attraction for learners, taking up the bulk of their time and interests, all of this may make the possibility of limiting their spread not easy, and for this it may be better to work as much as possible to invest it best investment, by directing teachers and learners towards the optimal use of these technologies, and working to increase their awareness of the many benefits and advantages contained in these technologies, which can be benefited if directed in the right direction (Ali, 2020).

Many studies (Bryan and Volchenkova (2016); Halverson and Graham (2019); Rao (2019); Cortez (2020) and Saboowala and Manghirmalani-Mishra 2020) have proved that learning is enhanced through blended mode. These studies have been conducted on blended learning, but no study talks about the readiness of the teachers themselves. Teachers are unexpectedly told to become acclimatized to this method of teaching due to COVID-19. Most of the schools have been unexpectedly closed in the month of March 2020 and hence face to face orientation of teachers on E-learning has not been conducted. Therefore, the present study seeks to address the following questions:

1. What are the perceptions of using blended learning during the COVID 19 Pandemic in Jordan as reported by secondary school teachers in Jordan?

2. Does the perceptions of using blended learning reported by secondary school teachers vary across gender and school type variables?

2. Literature Review

Educators assert that learning process is not limited to transferring knowledge to the learner, but rather is broader and more comprehensive, as it is a process whose focus most important and the basis is to meet the personal and social needs of the learner (Bakalar, 2018). Most of the homes have these modern technological techniques, which led to wasting their usefulness by using them as a technology for entertainment (König, Biela & Glutsch, 2020). The pursuit of investing these modern technologies in education contributes to the development of the educational process, so blended learning came to accomplish this, as it blends traditional learning and e-learning according to an active and flexible educational environment that benefits the learner and teacher (Halverson & Graham, 2019). Graham, Allen, and Ure (2005) and Diabat (2013) confirmed that blended learning is characterized by the provision of vast and varied areas in learning where we find with it many opportunities available in teaching, and it contributes to strengthening the study material where it achieves communication and diversity in activities, ease of delivery and receipt of tasks and allows flexibility in evaluation, which is positively reflected on the learner in providing him with knowledge and diversity in the use of various sources, achieve interaction between learners as participatory groups and cooperation is strengthened among them.

2.1 The Concept of Blended Learning

The concept of blended learning is one of the modern concepts in the education field. There was a consensus to describe blended learning as a mixing or blending between traditional learning and E-learning. Blended learning is not just a one-time event and ends with that, but that learning is a vital process that is continuous and renewed (Sofia, Jose & Leontios, 2014). Saboowala and Manghirmalani-Mishra (2020) defined blended learning as an effective blend of different methods of learning styles, teaching models, and delivery approaches. Graham (2006) defines blended learning as a method to merge face-to-face learning with learning by computer. Also, it is also defined as the deliberate incorporation of face-to-face learning opportunities in the classroom with learning opportunities

online (Garrison & Kanuka, 2004). Allen and Seaman (2009) define blended learning as follows: an approach that merges between face-to-face learning methods and online learning methods, but usually, online methods are used and the number of face-to-face meetings is limited. The researcher concludes from the previous definitions that blended learning is a learning that seeks to find the best and optimal balance between both leanings methods; traditional and electronic; to achieve the greatest possible effectiveness from the interaction of their positives together, taking into account what distinguishes each educational situation. It is that learning that believes in the necessity of increasing the effectiveness of its learners inside and outside the boundaries of his classroom or upgrading the role of the teacher to become the adviser and guider.

2.2 Moving from Traditional Learning to E-Learning and then Blended Learning

Despite the distinctive impact of e-learning on the learning environment and the enormous potential it can represent through which it can revolutionize education, but it quickly evolved into the concept of hybrid or blended learning that its name suggests merging between online learning with the traditional method (Halverson & Graham, 2019). It represents an opportunity to integrate technological developments and innovations presented online learning with the interaction and participation provided in the best traditional education (Hrastinski, 2019).

Singh (2011) points out that the emergence of technology with its multiple technologies and their adoption in the field of education was a real hope to get rid of the negatives of the traditional learning and to look to technical educational future, and hopefully offer new solution by any new technology that emerges with all its capabilities and energies to try overcome any difficulties that may face this vital sector in order to reflect its positives in its various aspects. However, there are several factors that have made the education system unable to completely abandon the traditional methods of transferring knowledge (AlShahrani & Talaue, 2018). Although there are gaps in the traditional learning method, it is more in contact with human needs, as face-to-face interaction is unique in its ability to achieve emotional goals side by side with both cognitive and kinetic goals (Kaur, Dwivedi, Arora & Gandhi, 2020). Despite its many benefits, it is not without drawbacks and deficiencies, including its failure to meet the needs of all learners in the classroom, in addition to imposing compulsory attendance on learners and adopting the annual examination system (Lalim & Dangwal, 2017). Benson, Joseph, and Moore (2017) mentioned that the primary goal of technology in the field of education is to achieve a better understanding of learners, reach to the actual integration, and to activate the connection between culture, education, and technology in an attempt to transform education into a more comprehensive, fair and powerful field to achieve true integration of the learner to the maximum of his abilities. Based on the foregoing, blended learning does not aim to shift from traditional learning to E-learning, but the primary goal of it maintains the traditional learning systems while introducing modern technical modifications and improvements with it, to make the education sector a vital and dynamic, and capable of keeping pace with the rapid developments surrounding it on the aspect and meeting the growing needs on the other aspect.

2.3 Advantages and Disadvantages of Blended Learning

Akhtar, Saidalvi and Hassan (2019) stated that blended learning provides greater opportunities for linking educational materials with each other and merging them together to become one interconnected unit. This link and connections would facilitate the process of learning by focusing on learning facts more than concepts, because concepts are broader in their meanings as well as their relationships and ties. Blended learning requires relying on new foundations when developing curricula to enable learners to achieve a better understanding of what they are learning, so that their

learning achieves the meaning, value, and desired benefit of it. Rao (2019) added that blended learning came to serve as a link between traditional learning and E-learning, thus having many advantages that outweigh the advantages of both traditional learning and E-learning if they are taken separately, as is not limited to the boundaries of the classroom, but it remains in contact with its learners even after the end of the classroom lessons to achieve continuous effectiveness even with the presence of a large number of learners. One of the greatest advantages of blended learning is that it deals with a uniqueness aspect from each aspect of learning methods; there is no a method or strategy for education as each educational situation has specific characteristics in light of the many variables that impose itself on it, so the real challenge is the possibility of differentiation between these methods and strategies, to choose the most appropriate and most compatible with the objectives of each educational situation separately. Blended learning may have technical drawbacks if it is not designed and implemented properly since it relies on technical resources or equipment. Kaur (2013) mentioned that the necessity for all students to be online at the same time, lack of needs of students and teachers of sophisticated workstations and link at high-speed, lack of technical skills, and resources necessary for interact are the disadvantages of blended learning.

2.4 Previous Studies

Many studies have proved that blended learning has enhanced learning. In this context of blended learning, some prominent studies are listed. Sorbie (2015) conducted a study aimed to detect teachers' perceptions of blended learning and its impact on the teaching practices of teachers, and the extent to which it helps students learn from the point of view of teachers in secondary schools in the Midwest region in the United States of America. The data were collected through a questionnaire, in addition to various observations, computer screenshots provided by the participating teachers and from semi-structured interviews for each of them. The results of the study showed that these teachers believe that blended learning enhances the principle of uniqueness of learning, cooperation, organization, participation, relevance to the real world, and centering around the learner, and they agreed that blended learning supports their teaching practices and their future challenges.

Al-Hadhoud and Al-Hattami (2017) carried out a study to investigate the degree of implementing blended learning in Jordan and the difficulties that impede its implementation. The study population consisted of all teachers in the Fifth Amman Education Directorate. The data were collected through a questionnaire distributed for Arabic, Maths, and Science teachers. The results of the study showed that the degree of implementing blended learning in the Fifth Amman Education Directorate was of a medium degree. The results also showed many obstacles impeding the use of blended learning such as low Internet readiness and overcrowding of classrooms with learners.

Martinsen (2017) conducted a study aimed at identifying the potential and barriers of blended learning and to find out the perceptions of both the teacher and the learner for blended learning in two secondary science classes in Australia. A mixed approach strategy was used to collect and analyze quantitative and qualitative data. A pre and post-test was conducted, student surveys, group interviews of students, and observations in the classroom. The results showed that blended learning had a positive effect on student achievement, while qualitative data indicated the importance of the role of blended learning in forming positive attitudes among learners towards their achievements. It is interesting to note in this study that the majority of learners indicated that they learned more through blended learning and indicated that they enjoyed more enjoyment to learn with a blended learning strategy.

Saboowala and Manghirmalani-Mishra (2020) studied the interaction impact of both gender and teachers who used online learning practices or have not to attitude towards blended learning under the COVID-19 pandemic. Online learning, the flexibility of learning, the management of study, classroom learning, and online interaction were all studied during the pandemic of COVID-19. Also, the interaction between the effects of the highest educational qualification of teachers who used one of the practices of online learning or have not to attitude towards blended learning was considered under the COVID-19 pandemic. The data were collected through a questionnaire from teachers teaching in various educational institutes in India through circulating Google forms due to the COVID-19 pandemic. The results of this study revealed apparent interaction between both teachers and their gender in employing the practices of online learning. The results also showed the effect of interaction varies across the teachers' qualifications, study management, and classroom environment.

3. Method

3.1 Research Design

The current study employed a survey descriptive method in which a questionnaire was used to collect the data needed to answer the questions of the study. The sample of this study included 161 (92 female and 69 male teachers) which have been randomly selected from different public and private schools at Karak governorate. The questionnaire was distributed to the sample through circulating online form to the participants. This technique was used due to quarantine imposed to Jordanian schools because of the COVID-19 outbreak.

3.2 Research Instrument

As mentioned earlier, the present study employed a questionnaire to collect the data. The questionnaire was adapted from Bribal et.al (2018) study which aimed to investigate the teachers' perceptions toward blended learning. The questionnaire consisted of (35) items and it was translated into Arabic to get more accurate responses from the participants. To ensure the validity of the instrument, it was presented to six faculty members in the Faculty of Educational Sciences in the Jordanian public and private universities. This was done in order to judge the extent to which the paragraphs belong to the fields in which they were placed, their validity, comprehensiveness, and to evaluate the level of language formulation or any other observations they deem appropriate to modification, change, or deletion. The necessary amendments proposed by the arbitrators to the paragraphs were made. The final version of the questionnaire included (30) items under three dimensions (educational, learning, and educational environment dimension). Also, the validity of the internal consistency was checked by calculating the correlation coefficients between the items and the instrument (see Table 1).

Table 1: Correlation Coefficients of the Questionnaire Items

Item	Correlation	Significant	Item	Correlation	Sig
1	.650	.000	16	.361	.000
2	.616	.000	17	.390	.000
3	.446	.000	18	.527	.000
4	.669	.000	19	.492	.000
5	.674	.000	20	.469	.000
6	.663	.000	21	.424	.000

7	.715	.000	22	.548	.000
8	.697	.000	23	.541	.000
9	.598	.000	24	.534	.000
10	.459	.000	25	.506	.000
11	.395	.000	26	.506	.000
12	.619	.000	27	.460	.000
13	.651	.000	28	.356	.004
14	.619	.000	29	.225	.000
15	.573	.000	30	.331	.000

Table (1) shows that all the values of the correlation coefficients were acceptable and significant at the level of significance ($0.05 = \alpha$). The correlation of the questionnaire items ranged between (0.225 - 0.715). This proves that the items are internally consistent and, as a result, the instrument is said to be valid. The reliability coefficient was also calculated using Cronbach-Alpha to check the reliability of the research instrument in general and the dimensions in particular (see Table 2).

Table 2: Reliability Coefficients of the Research Instrument

The Dimension	Cronbach Alpha Coefficients
Educational dimension	0.895
Learning dimension	0.813
The educational environment dimension	0.780
Total	0.907

As shown in table (2) above, all values of reliability coefficients were relatively high. The value of the Cronbach alpha coefficient was 0.895 in the educational dimension, 0.813 in the learning dimension, and 0.780 in the educational environment dimension. The Cronbach alpha of the entire instrument was .907 which means that the instrument is reliable and suitable for the study.

4. Results and Discussion

The Statistical Package for Social Sciences (SPSS, version 23) was used to analyze the data of the study. Two-way ANOVA was used to indicate the potential significant differences between the perceptions of using blended learning and two variables (i.e. gender and school type). A total of 161 male and female secondary school teachers in Karak governorate participated in the study. The percentage of male teachers was 42.9%, while 57.1% was accounted for female teachers. The percentage of teachers working in private schools was 8.7% of the overall sample, while 91.3% of the sample were teachers working in public schools (see Table 3).

Table 3: Demographic Information of the Participants

Variable	N	Percentage
Gender		
Male	69	42.9 %
Female	92	57.1 %
Supervisory Authority		
Private	14	8.7 %
Governmental	147	91.3 %

To answer the first research question, means, standard deviations of the perceptions of using the blended learning strategy for secondary school teachers in Karak governorate were calculated for each item of the questionnaire used in the study, as shown in Table (4).

Table 4: Means and Standard Deviations of the Perceptions of Using the Blended Learning Strategy

N	Item	Mean	Std. Deviation	Level
1	I am receiving the necessary technical support I need to teach with the blended learning strategy.	2.40	.68	High
2	My teaching style fits with the blended learning strategy	2.52	.70	High
3	I do everything I can to blend the activities of the classroom and techniques together.	2.17	.80	Medium
4	The blended learning strategy helps me achieve the lesson objectives.	2.41	.75	High
5	I use data show devices in teaching	2.48	.69	High
6	The blended learning strategy helps me do justice to education to an extent.	2.39	.75	High
7	Using blended learning strategy contributes to professional development.	2.43	.75	High
8	Using a blended learning strategy helps present the lesson in an organized manner.	2.37	.73	High
9	The use of a blended learning strategy enhances the cooperation between me and my fellow teachers of other subjects.	2.38	.70	High
10	Using a blended learning strategy helps create connections between different school subjects.	2.01	.87	Medium
11	Using the blended learning strategy provides me with feedback.	2.14	.82	Medium
12	The use of a blended learning strategy increases the motivation of the learners towards learning.	2.12	.81	Medium
13	The use of a blended learning strategy improves learners' ability to understand educational subjects.	2.57	.63	High
14	The use of a blended learning strategy helps develop the self-learning skills of the learners.	2.10	.75	Medium
15	The blended learning strategy helps to take into account individual differences between the learners.	1.91	.85	Medium
16	Using a blended learning strategy helps learners retain information.	1.91	.78	Medium

17	Using a blended learning strategy increases the degree of teacher-learner interaction.	1.91	.78	Medium
18	Using a blended learning strategy provides the learner with different learning resources.	2.11	.91	Medium
19	Using a blended learning strategy provides feedback to the learner.	1.98	.79	Medium
20	The use of a blended learning strategy contributes to the learners' acceptance of educational subjects.	2.16	.83	Medium
21	Using a blended learning strategy helps save time and effort.	2.17	.75	Medium
22	The use of a blended learning strategy encourages learners to participate in educational learning activities.	2.02	.80	Medium
23	The blended learning strategy develops the learner's self-confidence.	1.95	.84	Medium
24	The blended learning strategy helps learners with learning disabilities achieve a greater understanding of what they are learning.	2.55	.68	High
25	The school provides data show devices.	2.43	.70	High
26	The school provides an available internet network for different learning situations.	2.13	.79	Medium
27	The school has ready-made educational software.	2.13	.75	Medium
28	The school provides smart boards in the classroom	2.17	.74	Medium
29	The school provides technical support through computer and Internet specialists.	2.06	.76	Medium
30	The school provides educational websites on the Internet.	2.09	.77	Medium
Total		2.15	.41	Medium

The above table shows that the total mean score of the questionnaire items was (2.15), and this indicates a medium degree of the perceptions of using blended learning. The mean scores of questionnaire items ranged between (1.91-2.57), where (11) items obtained a high degree of use from the viewpoint of the sample members. The mean scores of these items ranged between (2.37 - 2.57), where item (13) was the highest, which stated: "The use of a blended learning strategy improves learners' ability to understand educational subjects", while the lowest was item (8) which states: "Using a blended learning strategy helps present the lesson in an organized manner". As revealed in Table (4), there were (19) items that obtained a medium-degree of use from the viewpoint of the participants of this study, where the means of these items ranged between (1.91- 2.17). The highest was items (21) and (28) which state: "Using a blended learning strategy helps save time and effort" and "The school provides smart boards in the classroom", respectively, while no item has obtained a low-degree from the viewpoint of respondents.

This result is attributed to several factors, including the school's readiness to implement the blended learning strategy. In many schools, a lot of care and attention is paid to establishing an advanced technological infrastructure, as its administration is concerned with providing the necessary technical equipment and tools to enable its teachers to implement strategies that rely largely on these technologies. In addition, the increased interest of some schools in offering training courses to develop their teachers professionally was clearly reported in the results. Some schools offer such kind of education on a regular basis to ensure that its teachers are informed of everything new and modern

in the field of education as a whole and in their fields. also, to the difference and disparity in the characteristics, tendencies, and desires of the learners themselves, and in the event that there are a desire, tendencies, and ability to use these technologies by the learners, this may push teachers to increase use it in their different teaching styles.

   With regard to the items that obtained a medium degree, this result may be attributed to several factors, including the disparity degrees use of the blended learning strategy among teachers due to the nature of the subject itself, the time factor that determines the time period for presenting the lesson, and the academic qualification of teachers, as it is possible for the academic qualification worker to play an active role; because it may lead to an increase in the ability of its graduates to use the programs and technical tools, in addition to that it is possible that the graduates of these colleges will have a greater conviction in the feasibility of technical employment during their presentation of their lessons; the school's readiness to implement this strategy, such as the availability of the Internet in the school. The previous table showed that the mean of the answers was (2.15). This indicates that teachers in secondary schools in Karak governorate use the blended learning strategy with a medium degree. This finding is consistent with the result of a study Sorbie (2015); AL-Hadhoud and Al-Hattami (2017) and Martinsen (2017). To answer the second research question, means, standard deviations of the study variables were calculated as shown in Table (5).

Table 5: Means and the Standard Deviations According to the Study Variables

Gender	Type of School	N	Means	Std.Deviation
Male	Government	59	2.24	.44
	Private	10	2.23	.29
	Total	69	2.24	.42
Female	Government	88	2.08	.40
	Private	4	2.33	.23
	Total	92	2.09	.40
Total	Government	147	2.14	.42
	Private	14	2.26	.27
	Total	161	2.15	.41

   Table (5) shows the existence of apparent differences between the means of the study variables, and to know the significance of these differences, the two-way ANOVA test was used. Table (6) shows the results of this analysis.

Table 6: Two Way ANOVA Analysis of the Study Variables

The Source	df	Mean square	F	Sig.
Gender	1	.010	.059	.808
Supervising Authority	1	.154	.919	.339
Gender* Supervising Authority	1	.198	1.187	.278
Error	157	.167	----	----
Total	160	773.767	----	----

The results showed that there are no statistically significant differences in the degree of using blended learning attributed to gender, this result may be attributed to the fact that all teachers are convinced of the feasibility of these modern methods, and their quest for renewal and development away from the stereotypes and the usual traditional methods regardless of their gender. This finding is not in agreement with the result of Saboowala and Manghirmalani-Mishra (2020). The results also showed that there are no statistically significant differences in the degree of using blended learning attributed to the type of school. This result may be attributed to the availability of support capabilities to implement this strategy in private and government schools, especially regarding the technological infrastructure. Furthermore, this result could be attributed to that training courses and administrative supervision are provided to both public and private schools. Finally, the results showed no interaction in the degree use of the blended learning strategy attributed to the interaction between gender and the type of school. This means that the two variables (gender and supervising authority) are not interacting, and therefore are independent, which makes the difference in one does not affect the other.

5. Conclusion

The level use of strategy of blended learning was medium, which could be considered a logical outcome of the total lockdown in response to the COVID-19 pandemic. Furthermore, as the teachers reported moderate use of blended learning, it is recommended that there should be a plan to deliver both traditional learning and online learning to help mitigate any potentially negative consequences on the learning process during the COVID-19 pandemic. Additionally, while e-learning is generally encouraged in the case of science subject education, well-designed blended learning could be considered a preferable learning strategy to ensure the benefits of e-learning and traditional learning while accommodating practical training. However, further studies are needed to explore in-depth the type of assistance that would improve the student learning experience during the current COVID-19 pandemic.

6. Strengths and Limitations

The study instrument adopted for the collection of data was highly reliable, as showed through the internal consistency test. Furthermore, the survey has been conducted during the COVID-19 pandemic and hence represents accurate insight from Jordanian teachers in relation to their blended learning application. Lastly, reviewing the literature, this study seems to be the first to focus on the blended learning process from the perspective of Jordanian science teachers at secondary schools. Thus, evaluating this experience could bring valuable results and provide guidance for the decision-making process in the ministry of education which aspects of learning should be prioritized to improve blended learning from a long-term perspective. However, due to the lack of studies in this area, the researcher could not compare the results of this study with other studies' results.

7. Pedagogical Implications

The results of this study provide some pedagogical benefits of blended learning. This study as well as previous studies conducted on this field indicated blended learning to be as effective as face-to-face teaching. Teaching some courses in a blended method could even be more effective than the traditional method. Blended learning method could be more effective in reflecting teaching practice, collaborative learning, and writing classes. Adopting blended learning, faculty members and designers would mix and match the courses together. This study is just a starting point for getting more insights

about blended learning in Jordan, more studies could be done to investigate the teachers' perceptions toward full online learning as well.

References

Akhtar, R., Saidalvi, A., & Hassan, H. (2019). A Comparative Study of Blended Learning versus Traditional Learning in ESL Class. *The International Journal of Humanities & Social Studies*, *7*(2). https://doi.org/10.24940/theijhss/2019/v7/i2/hs1902-063

Al-Hadhoud , et al., N. A. (2017). Blended Learning and the Obstacles to its Implementation. *International Journal of Pedagogical Innovations*, *5*(1), 72–89. https://doi.org/10.12785/ijpi/050106

Al-Heila, M. M., (2016). Education Design, Theory and Practice. *6th Edition*, Amman: Al-Wasila House for Publishing And distribution.

Ali, W. (2020). Online and Remote Learning in Higher Education Institutes: A Necessity in light of COVID-19 Pandemic. *Higher Education Studies*, *10*(3), 16. https://doi.org/10.5539/hes.v10n3p16

AlShahrani, F., & M. Talaue, G. (2018). TRADITIONAL VERSUS BLENDED LEARNING METHOD: A COMPARATIVE STUDY ON ITS EFFECTIVENESS IN BUSINESS COMMUNICATION COURSE. *International Journal of Advanced Information Technology*, *08*(06), 01–18. https://doi.org/10.5121/ijait.2018.8601

Benson, A. D., Joseph, R., & Moore, J. L. (2017). *Culture, learning, and technology : research and practice*. Routledge, Taylor & Francis Group.

Bower, M., Dalgarno, B., Kennedy, G. E., Lee, M. J. W., & Kenney, J. (2015). Design and implementation factors in blended synchronous learning environments: Outcomes from a cross-case analysis. *Computers & Education*, *86*, 1–17. https://doi.org/10.1016/j.compedu.2015.03.006

Birbal, Dr. R., Ramdass, Dr. M., & Harripaul, Mr. C. (2018). Student Teachers' Attitudes towards Blended Learning. *Journal of Education and Human Development*, *7*(2). https://doi.org/10.15640/jehd.v7n2a2

Bryan, A., & Volchenkova, K. N. (2016). BLENDED LEARNING: DEFINITION, MODELS, IMPLICATIONS FOR HIGHER EDUCATION. *Bulletin of the South Ural State University Series "Education. Education Sciences," 8*(2), 24–30. https://doi.org/10.14529/ped160204

Cortez, C. P. (2020). Blended, Distance, Electronic and Virtual-Learning for the New Normal of Mathematics Education: A Senior High School Student's Perception. *European Journal of Interactive Multimedia and Education*, *1*(1), e02001. https://doi.org/10.30935/ejimed/8276

Mohamed Abd El-Hamed Diab, G., & Fouad Elgahsh, N. (2020). E-learning During COVID-19 Pandemic: Obstacles Faced Nursing Students and Its Effect on Their Attitudes While Applying It. *American Journal of Nursing Science*, *9*(4), 300. https://doi.org/10.11648/j.ajns.20200904.33

Diabat, B. (2013). Effectiveness of Programmed Learning Based upon the Use of Blended and Traditional Learning Methods in the Achievement of Tafila Technical University Students in the Course" Methods of Teaching for Early Graders" and their Attitudes towards Programmed Learning.Elaine Allen, Seaman, J., & Sloan Consortium. (1238). *Learning on Demand: Online Education in the United States, 2009*. Sloan Consortium. P.O. Box , Newburyport, Ma 0. Tel: 781-583-; Fax: 888-898-; E-Mail: Info@Sloanconsortium.Org; Web Site: Http://Sloanconsortium.Org -01-00.

Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *The Internet and Higher Education*, *7*(2), 95–105. https://doi.org/10.1016/j.iheduc.2004.02.001

Graham, C. R. (2006). Blended learning systems. The handbook of blended learning. *Chapter One*, 3-21.

Graham, C. R., Allen, S., & Ure, D. (2005). Blended learning: An emerging trend in education. *Encyclopedia of Distance Learning (99. 172-179). Hershey, PA: Idea Group Inc*.

Halverson, L. R., & Graham, C. R. (2019). Learner Engagement in Blended Learning Environments: A Conceptual Framework. *Online Learning*, *23*(2). https://doi.org/10.24059/olj.v23i2.1481

Hrastinski, S. (2019). What Do We Mean by Blended Learning? *TechTrends*, *63*(5), 564–569. https://doi.org/10.1007/s11528-019-00375-5

Alsarayreh, R. (2020). Using blended learning during COVID-19: The perceptions of school teachers in Jordan. *Cypriot Journal of Educational Science*. *15*(6), 1544-1565. https://doi.org/10.18844/cjes.v15i6.5298

Kaur, M. (2013). Blended Learning - Its Challenges and Future. *Procedia - Social and Behavioral Sciences*, *93*, 612–617. https://doi.org/10.1016/j.sbspro.2013.09.248

Kaur, N., Dwivedi, D., Arora, J., & Gandhi, A. (2020). Study of the effectiveness of e-learning to conventional teaching in medical undergraduates amid COVID-19 pandemic. *National Journal of Physiology, Pharmacy and Pharmacology*, *10*(7), 1. https://doi.org/10.5455/njppp.2020.10.04096202028042020

König, J., Jäger-Biela, D. J., & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: teacher education and teacher competence effects among early career teachers in Germany. *European Journal of Teacher Education*, 1–15. https://doi.org/10.1080/02619768.2020.1809650

Lalima, D., & Dangwal, K. L. (2017). Blended learning: An innovative approach. *Universal Journal of Educational Research*, *5*(1), 129-136.

Marei, T. A., and Al-Heila, M. M. (2016). *Modern educational curricula. Its elements - its foundations, its operations (13th Edition*). Amman: Dar Al Masirah for Publishing and Distribution.

Martinsen, B.W. (2017). The Potential and Pitfalls of Blended Learning*, (unpublished doctoral dissertation), James Cook University, Townsville*: Australia.

Rao, V. C. S (2019). Blended Learning: A New Hybrid Teaching Methodology. *JRSP-ELT,* 13 (3).

Rasmitadila, R., Widyasari, W., Humaira, M. A., Tambunan, A. R. S., Rachmadtullah, R., & Samsudin, A. (2020). Using Blended Learning Approach (BLA) in Inclusive Education Course: A Study Investigating Teacher Students' Perception. *International Journal of Emerging Technologies in Learning (IJET)*, *15*(02), 72. https://doi.org/10.3991/ijet.v15i02.9285

Saboowala, R., & Manghirmalani-Mishra, P. (2020). Perception of In-Service Teachers Towards Blended Learning as the New Normal in Teaching-Learning Process Post COVID-19 Pandemic.

Singh, C. P. (2011). *Advanced educational technology*. Saurabh Publishing House.

Sofia, B.D., Jose, A.D., & Leontios, J.H. (2014). Towards an Intelligent Learning Management System under Blended Learning (Trends, Profiles and Modeling Perspectives, Switzerland *Springer International Publishing*.

Sorbie, J. (2015). Exploring teacher perceptions of blended learning, *(Unpublished Doctoral Dissertation), Walden University, Minneapolis*, Minnesota: USA.