Effectiveness of Blended Learning Strategies in Jordanian Universities: Faculty Members' Point of View

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Abstract
This study aimed at analyzing the effectiveness of blended learning strategies in Jordanian Universities from the faculty members' point of view. For that, the researcher adopted the descriptive-analytical statistical methodology by applying the study tool (questionnaire) to a sample size of (40) faculty members from two Jordanian Universities (Al-Zaytoonah University and *Mutah University*). And after calculating the relative weights of the arithmetic means, the results showed differences in the levels of acceptance of the effect of the study variables within its three pillars (University responsibilities, technical requirements, and learners' responsibilities) on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view. Results also show that all the study variables within the three parts (University responsibilities, technical requirements, and learners' responsibilities) have statistically significant influences at the level of significance ($\alpha \leq 0.05$) on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

1.1 introduction

This era is characterized by the rapid changes resulting from the scientific, technological, and information revolution, so it has become necessary for the educational system to keep pace with these changes to face the future challenges, as these changes have led to the emergence of many teaching and learning methods, especially with the emergence of the technological revolution in information technology, which made the world a small village and led to the increase in the need of exchanging experiences with others, and the learner's need for rich multi-source environments for research and self-development. Some of the new teaching and learning methods are the emergences of e-learning and blended learning (Narayana, 2019).

Blended learning is one of the modern strategies in education, as it has gradually begun to replace e-learning in most educational institutions. Oweis (2018) believes that blended learning is the logical and scientifically acceptable alternative to e-learning, but it is higher in return, lower in cost, and is the most modern type of learning. Blended learning means mixing the roles of the traditional teacher in the traditional classroom with the roles of the electronic teacher in the virtual classroom, as it is a learning that combines traditional learning and e-learning (Nortvig, Petersen & Balle, 2018).

Blended learning also means the use of modern technology in teaching without abandoning the usual traditional education of the presence in the classroom, and indicates the direct interaction within the classroom through the use of modern communication mechanisms, such as computers, networks, and the Internet portals. This learning can be described as how information, attitudes, and educational experiences that are presented to the learner are organized through multimedia provided by modern technology or information technology. This type of learning is characterized by shortening time, effort and cost, through the delivery of information to learners as quickly as possible, in a way that enables the management and control of the educational process, measurement and evaluation of learners' performance, in addition to improving the general level of academic achievement, and providing an attractive educational environment (Khalil, AbdelMeguid & Elkhider, 2018).

1.2 literature Review

Blended learning is the use of modern technology in teaching without abandoning traditional educational methods, by direct interaction within the classroom through the use of modern communication mechanisms, such as computers, networks, and Internet portals. This learning method can be described as how information, attitudes, and educational experiences that are presented to the learner are organized through multimedia provided by modern technology or information technology. This type of learning is characterized by shortening time, effort, and cost, and also enabling management and control of the educational process, measurement and evaluation of learners' performance, in addition improving the general level of academic achievement, and providing an attractive learning environment (Vaughan, Cleveland-Innes & Garrison, 2013).

One of the most important factors for the success of blended learning is the communication between the

learner and the teacher because the learner in this new teaching method does not know when he/she needs help or the type of devices, equipment, tools, and software or when he/she can test his skills, so good blended learning must include sufficient instructions for samples of behavior, actions, and expectations (Shank, 2011).

One of the advantages of blended learning is that when we participate in blended learning, each individual (student, teacher) must be convinced that working in this type of learning requires the interaction of all participants, and it is necessary to work in the form of a specific team for each individual with the roles that he/she must play. Also, blended learning must encourage students to learn on their own, and learn among groups. Because the technological media available in blended learning allow participation at the same time between colleagues through the network or video conferencing, and thus the multi-media and the classroom interactions encourage creativity and quality work (Cheng & Chau, 2016).

Blended learning helps in providing the required material in many different ways that allow modification according to the method that is best for the student. It also allows the teacher to focus on the important ideas while writing and assembling the lecture or lesson and provides students who have difficulty concentrating and organizing tasks to benefit from the material because it is arranged and coordinated in an easy and good way. Blended learning also helps enable learners to express their ideas and provide them with time to participate in the classroom, and to search for facts and information in more and more effective ways than what is followed in traditional classrooms (Keshta & Harb, 2013).

1.3 Problem Statement

Technology has led to the expansion of the concept of learning, as it is no longer limited to a specific age or a specific place and specific resources and tools, as a result of which; multiple patterns and forms such as e-learning, distance learning, blended learning, and self-learning have emerged. The foundations of individual learner privacy, self-responsibility, and interaction have become among the core principles that form the theoretical basis for these modern methods of learning and teaching (Russell, 2009).

The educational literature has pointed to the importance of achievement as a product of students' learning processes because of its important role in increasing their understanding of the educational material. However, the indicators in the educational field are represented in the urgent need to improve the modern trend used to employ modern teaching and learning methods in the educational process and invest them to develop higher scientific and intellectual skills among students, by the use of educational technology (Hernandez-de-Menendez & Morales-Menendez, 2020).
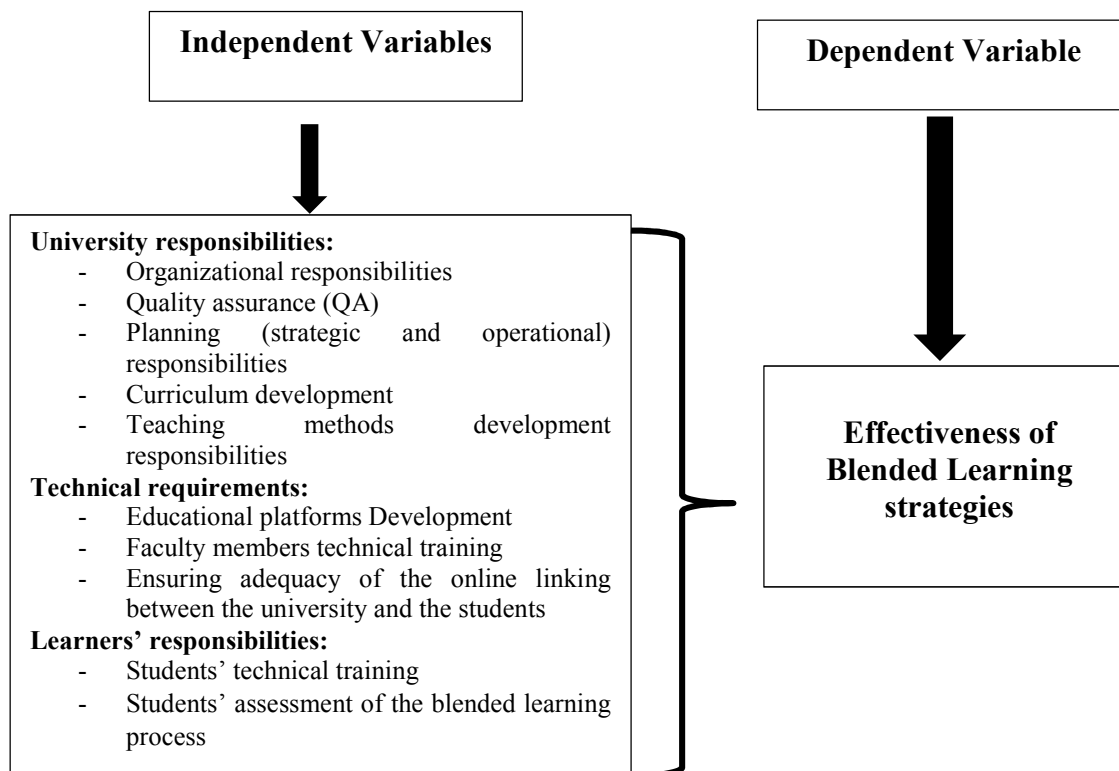
The importance of the current study stems out of the importance of using information and communication technology in general, and e-learning and the use of its applications and modern technologies in the educational process in Jordan, and also stems out of the importance of using the blended learning method in facilitating students' learning of scientific concepts and increasing their motivation towards learning through the use of this learning method for increasing their achievement, and thus emphasizing the activation of new methods that may contribute to the sustainable development of students by trying to keep pace with contemporary global trends in response to many recommendations of research and conferences for the necessity of employing technological innovations in the educational process to improve and develop teaching and learning processes, to reveal the effectiveness of using the blended learning strategy in the Jordanian universities.

The study comes to reveal the effectiveness of using the blended learning strategy in the Jordanian Universities from the point of view of faculty members; by attempting to answer its main question: *What are the pillars supporting the effectiveness of blended learning in Jordanian universities from the faculty members' point of view*?

1.4 Methods and Procedures

After reviewing the theoretical literature, and the previous studies related to the subject of the study, the study variables were determined according to the Universities' responsibilities, technical requirements, and the learners' responsibilities for revealing the effectiveness of using the blended learning strategy in the Jordanian Universities from the point of view of faculty members.

1.4.1 Study model

Independent Variables

University responsibilities:
- Organizational responsibilities
- Quality assurance (QA)
- Planning (strategic and operational) responsibilities
- Curriculum development
- Teaching methods development responsibilities

Technical requirements:
- Educational platforms Development
- Faculty members technical training
- Ensuring adequacy of the online linking between the university and the students

Learners' responsibilities:
- Students' technical training
- Students' assessment of the blended learning process

Dependent Variable

Effectiveness of Blended Learning strategies

1.4.2 Study Hypotheses

Based on the study variables, the following null hypotheses were made:

H01: There are no statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the university organizational responsibilities on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H02: There are no statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the university quality assurance (QA) responsibilities on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H03: There are no statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the University Planning (strategic and operational) responsibilities on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H04: There are no statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the university responsibilities of curriculum development on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H05: There are no statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the university responsibilities for teaching methods development on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H06: There are no statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the university responsibilities for educational platforms development on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H07: There are no statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the university responsibilities for faculty members' technical training on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H08: There are no statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the university responsibilities for ensuring the adequacy of the online linking between the university and the students on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H09: There are no statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the students' technical training on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H010: There are no statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the students' assessment of the blended learning process on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

1.4.3 Study Tool

The study tool (questionnaire) is designed by the researcher, and the questionnaire consisted of two sections: The first section covered the demographic data; included: faculty (scientific or humanitarian), academic rank (Assistant Professor, Associate Professor, or Professor), teaching experience. And the second section included the study variables into three pillars:

Pillar one: University responsibilities:
- Organizational responsibilities
- Quality assurance (QA)
- Planning (strategic and operational) responsibilities
- Curriculum development
- Teaching methods development responsibilities

Pillar two: Technical requirements:
- Educational platforms Development
- Faculty members technical training
- Ensuring adequacy of the online linking between the university and the students

Pillar three: Learners' responsibilities:
- Students' technical training
- Students' assessment of the blended learning process

1.4.3.1 Questionnaire Validity

The questionnaire was reviewed by several faculty members in the same field of the research to identify the suitability of the questionnaire for the goals to be achieved, and after retrieving all suggestions, all the necessary adjustments on the paragraphs of the questionnaire were made.

1.4.3.2 Questionnaire Reliability

To ensure the reliability of the study tool; the internal consistency coefficient (α) according to the alpha Cronbach's equation was calculated, with the value of (α) 77.4%, which is high when compared with the minimum acceptable rate of 60%.

1.4.4 Study Sample

The study sample consisted of (40) faculty members of two Jordanian Universities (Al-Zaytoonah University and *Mutah University*).

1.5 Results display

This section presents the results of the characteristics of the study sample.

1.5.1 Respondents' Demographic Characteristics

Figures (1, 2, and 3) show the respondents' demographic characteristics
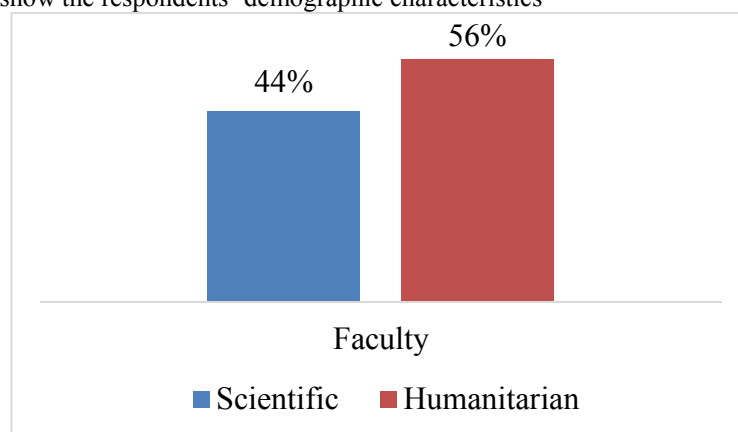

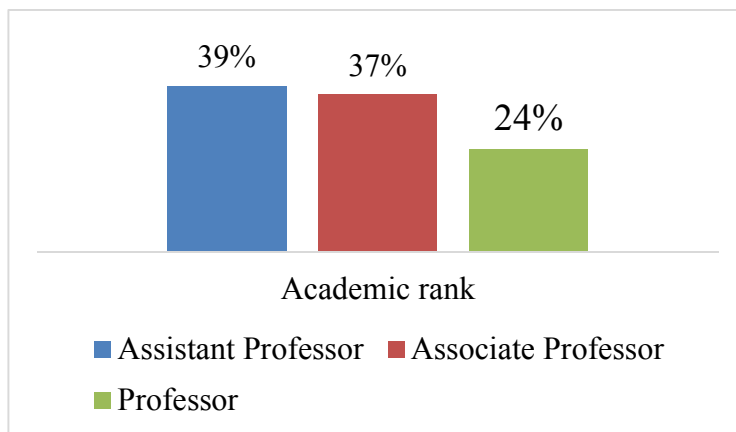Figure (1): Respondents' demographic characteristics (Faculty)

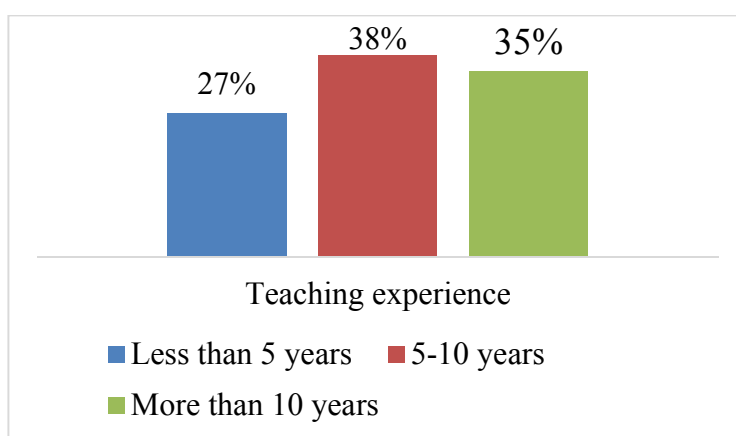Figure (2): Respondents' demographic characteristics (Academic rank)

Figure (3): Respondents' demographic characteristics (Teaching experience)

1.5.2 Trends toward the study variables

All paragraphs in the questionnaire are subjected to the 3-Likert Scale: Agree (three points), NA (two points), and disagree (one point). Thus, the largest value for the arithmetic mean is (3) and the lowest value is (1). Table (1) shows the arithmetic means, ranks, and levels for all the paragraphs of the study variables.

Table (1): Arithmetic means, rank, and level for all the paragraphs of the study variables

	Pillar one: University responsibilities			
	Organizational responsibilities			
No.	Paragraphs	Arithmetic means	Rank	Level
1	The organizational role of the university is to prepare the infrastructure for implementing blended learning	1.88	2	Medium
2	The university must develop legisl to ensure the effective implementation of blended learning	1.71	3	Medium
3	The university must have a long-term view to fact facilitating the process of using blended learning	2.41	1	High
	Average	2.00		Medium
	Quality assurance (QA)			
No.	Paragraphs	Arithmetic means	Rank	Level
4	The university must ensure the quality of the technical means that will be employed in the blended learning process	2.14	3	Medium
5	The university must ensure the ability of faculty members to apply the blended learning process efficiently	2.51	1	High
6	The university must ensure that the curricula are compatible with the technical content of the technical means that will be employed in the blended learning process	2.03	2	Medium
	Average	2.27		Medium

No.	Paragraphs	Arithmetic means	Rank	Level
Planning (strategic and operational) responsibilities
7	The university should carry out strategic (long-term) planning to adopt the blended learning process	1.92	2	Medium
8	The university should carry out operational planning (short-term) and update operational plans based on the feedback	1.78	3	Medium
9	The university should involve faculty members in the planning process	1.99	1	Medium
	Average	1.90		Medium
Curriculum development
No.	Paragraphs	Arithmetic means	Rank	Level
10	The university should develop curricula to be in line with the blended learning process	1.97	2	Medium
11	The university should develop curricula to accommodate digital content	1.64	3	Medium
12	The university should adopt curriculum development through a future strategy to adopt the blended learning process	2.11	1	Medium
	Average	1.91		Medium
Teaching methods development responsibilities
No.	Paragraphs	Arithmetic means	Rank	Level
13	The university should develop teaching methods to create the appropriate environment for the blended learning process	2.35	1	High
14	The university should modernize the digital infrastructure to match the adoption of the blended learning concept	2.21	2	Medium
15	The university should develop a mixture between traditional learning and blended learning	1.78	3	Medium
	Average	2.11		Medium
	Total average of all variables of pillar one	**2.04**		**Medium**
Pillar two: Technical requirements
Educational platforms Development
No.	Paragraphs	Arithmetic means	Rank	Level
16	The university should update its electronic platforms to keep pace with the transition to blended learning	2.65	1	High
17	The university should update the digital content of the curricula in line with the transition to blended learning	2.27	2	Medium
	Average	2.46		High
Faculty members' technical training
No.	Paragraphs	Arithmetic means	Rank	Level
18	The university should train all faculty members on the concept of blended learning	2.71	2	High
19	The university should train all faculty members to use the technologies required to transition to the blended learning process	2.69	1	High
	Average	2.70		High
Ensuring adequacy of the online linking between the university and the students
No.	Paragraphs	Arithmetic means	Rank	Level
20	The university must ensure the efficiency of its technical capabilities	2.97	1	High
21	The university must ensure the superior ability to connect electronically with students	2.56	2	High
	Average	2.77		High
	Total average of all variables of pillar two	**2.64**		**High**

		Arithmetic means	Rank	Level
Pillar three: Learners' responsibilities				
Students' technical training				
No.	**Paragraphs**	**Arithmetic means**	**Rank**	**Level**
22	The university should train all students on the concept of blended learning	2.49	2	High
23	The university should train all students to use the technologies required to transition to the blended learning process	2.55	1	High
	Average	2.52		High
Students' assessment of the blended learning process				
No.	**Paragraphs**	**Arithmetic means**	**Rank**	**Level**
24	The university should take into account the ideas proposed by students regarding the effectiveness of blended learning	1.22	1	Low
25	The university should take into consideration the feedback from students regarding the effectiveness of blended learning	1.01	2	Low
	Average	1.12		Low
Total average of all variables of pillar three		**1.82**		**Medium**

Data in table (1) shows that the highest approval rate of the study variables is for the (Ensuring adequacy of the online linking between the university and the students) variable of part two; the technical requirements, with an average mean of (2.77), and with high level. And data also show that the lowest approval rate of the study variables is for the (Students' assessment of the blended learning process) variable of part three; learners' responsibilities, with an average mean of (1.12), and with low level.

Additionally, data show that the highest approval rate of the study paragraphs is for the (*The university must ensure the efficiency of its technical capabilities*) paragraph of part two; the technical requirements, with an average mean of (2.97), and with high level. And the lowest approval rate of the study paragraphs is for the (*The university should take into consideration the feedback from students regarding the effectiveness of blended learning*) paragraph of part three; learners' responsibilities, with an average mean of (1.01), and with low level.

1.6 Testing the study hypotheses

For the approval or rejection of the study hypotheses, the one-way ANOVA test was conducted, and the results are illustrated in the table (2) show that as the significant results are less than (0.05), and all the study null hypotheses will be rejected and the alternative hypotheses will be accepted.

Table (2): One-way ANOVA for testing the study hypotheses

		Sum of Squares	Df	Mean Square	F	Sig.
H011	Between Groups	9230.694	3	439.557	218.053	
	Within Groups	780.123	37	2.016		0.000
	Total	10010.817	40			
H012	Between Groups	4903.518	3	233.501	16.326	
	Within Groups	5534.951	37	14.302		0.000
	Total	10438.469	40			
H01	Between Groups	7975.622	3	379.792	139.313	
	Within Groups	1055.029	37	2.726		0.000
	Total	9030.650	40			
H02	Between Groups	6900.372	3	328.589	127.116	
	Within Groups	1000.376	37	2.585		0.000
	Total	7900.748	40			
H03	Between Groups	7168.429	3	341.354	98.409	
	Within Groups	1342.403	37	3.469		0.000
	Total	8510.831	40			
H04	Between Groups	5796.197	3	276.009	73.880	
	Within Groups	1445.794	37	3.736		0.000
	Total	7241.990	40			
H05	Between Groups	6532.316	3	311.063	82.154	
	Within Groups	1465.317	37	3.786		0.000
	Total	7997.633	40			

		Sum of Squares	Df	Mean Square	F	Sig.
H06	Between Groups	8544.226	3	327.114	64.455	0.000
	Within Groups	1312.383	37	3.576		
	Total	6994.656	40			
H07	Between Groups	5811.345	3	322.119	98.221	0.000
	Within Groups	1348.298	37	3.248		
	Total	6345.741	40			
H08	Between Groups	5722.334	3	321.667	67.768	0.000
	Within Groups	1248.267	37	2.090		
	Total	6970.601	40			
H09	Between Groups	4761.119	3	311.459	72.622	0.000
	Within Groups	1189.238	37	2.231		
	Total	5950.357	40			
H010	Between Groups	4467.755	3	345.558	78.435	0.000
	Within Groups	1461.562	37	2.320		
	Total	5929.317	40			

Therefore, the accepted alternative hypotheses are:

H1: There are statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the university organizational responsibilities on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H2: There are statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the university quality assurance (QA) responsibilities on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H3: There are statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the University Planning (strategic and operational) responsibilities on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H4: There are statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the university responsibilities of curriculum development on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H5: There are statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the university responsibilities for teaching methods development on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H6: There are statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the university responsibilities for educational platforms development on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H7: There are statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the university responsibilities for faculty members' technical training on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H8: There are statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the university responsibilities for ensuring the adequacy of the online linking between the university and the students on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H9: There are statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the students' technical training on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

H10: There are statistically significant influences at the level of significance ($\alpha \leq 0.05$) of the students' assessment of the blended learning process on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.

1.7 Results Discussion

After calculating the relative weights of the arithmetic means, the results showed differences in the levels of acceptance of the effect of the study variables within its three pillars (University responsibilities, technical requirements, and learners' responsibilities) on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view.
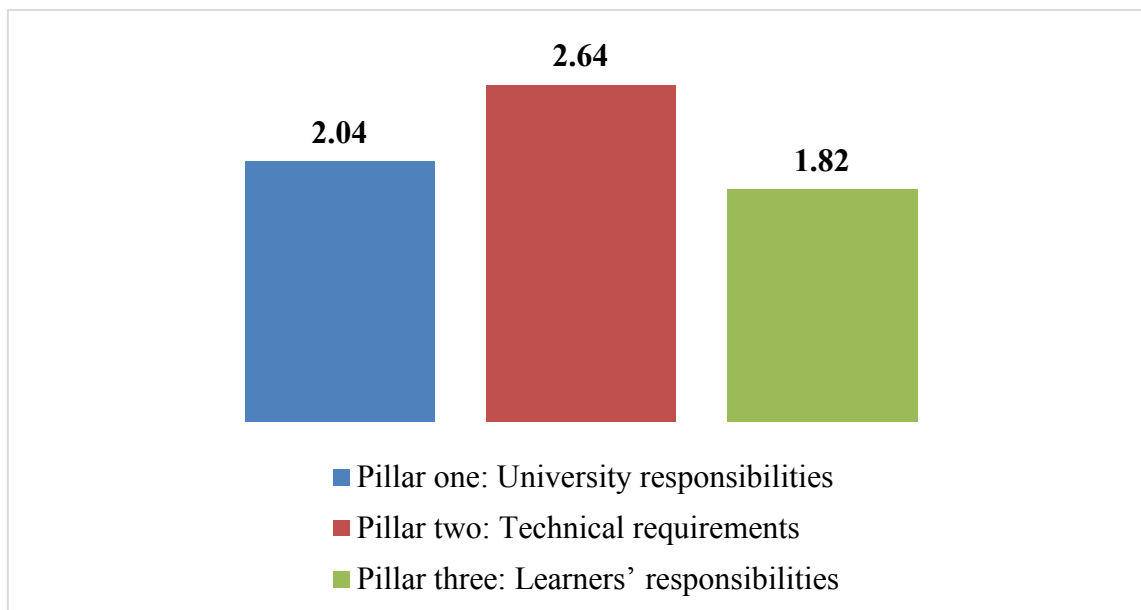
Figure (4): Levels of the three pillars impact on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view

Data in figure (4) show that pillar two (Technical requirements) has the highest impact on the effectiveness of blended learning strategies in the Jordanian Universities from the faculty members' point of view, followed by the impact of pillar one (University responsibilities) with medium level, and with the least impact of pillar three (Learners' responsibilities) also with medium level. These results reflect that the successful completion of the transition to blended learning requires the development of technical requirements. And as shown in figure (5) the relative weights of the arithmetic means of pillar two variables (Educational platforms development, faculty members' technical training, and ensuring the adequacy of the online linking between the university and the students) show that for effective success of the transition to blended learning requires firstly ensuring the adequacy of the online linking between the university and the students, and also requires faculty members' technical training, and finally requires developing the educational platforms.
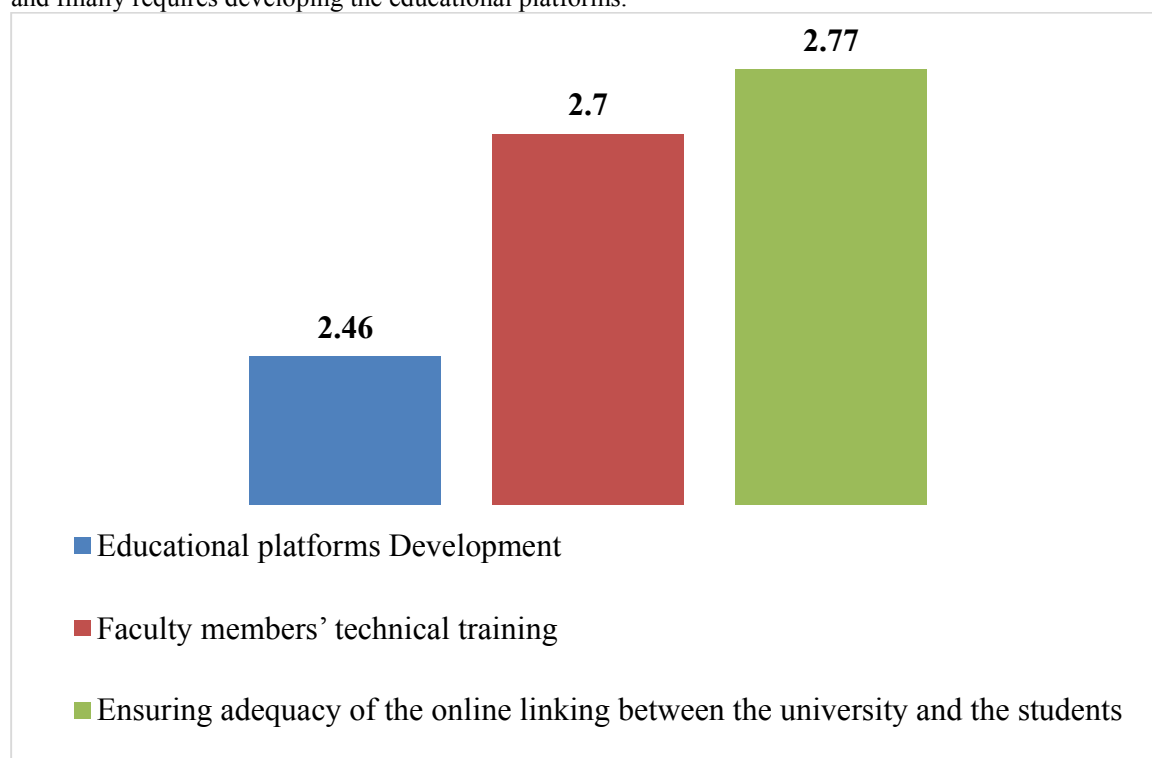

Figure (5): The relative weights of the arithmetic means of pillar two variables

And as shown in figure (6) the relative weights of the arithmetic means of pillar one variables (Organizational responsibilities, quality assurance (QA), planning (strategic and operational) responsibilities, curriculum development, and teaching methods development responsibilities) show that for the effective success of the transition to blended learning requires firstly ensuring the quality of the blended learning process, developing the teaching methods, and also the need of submitting a qualified strategic and operational plans.
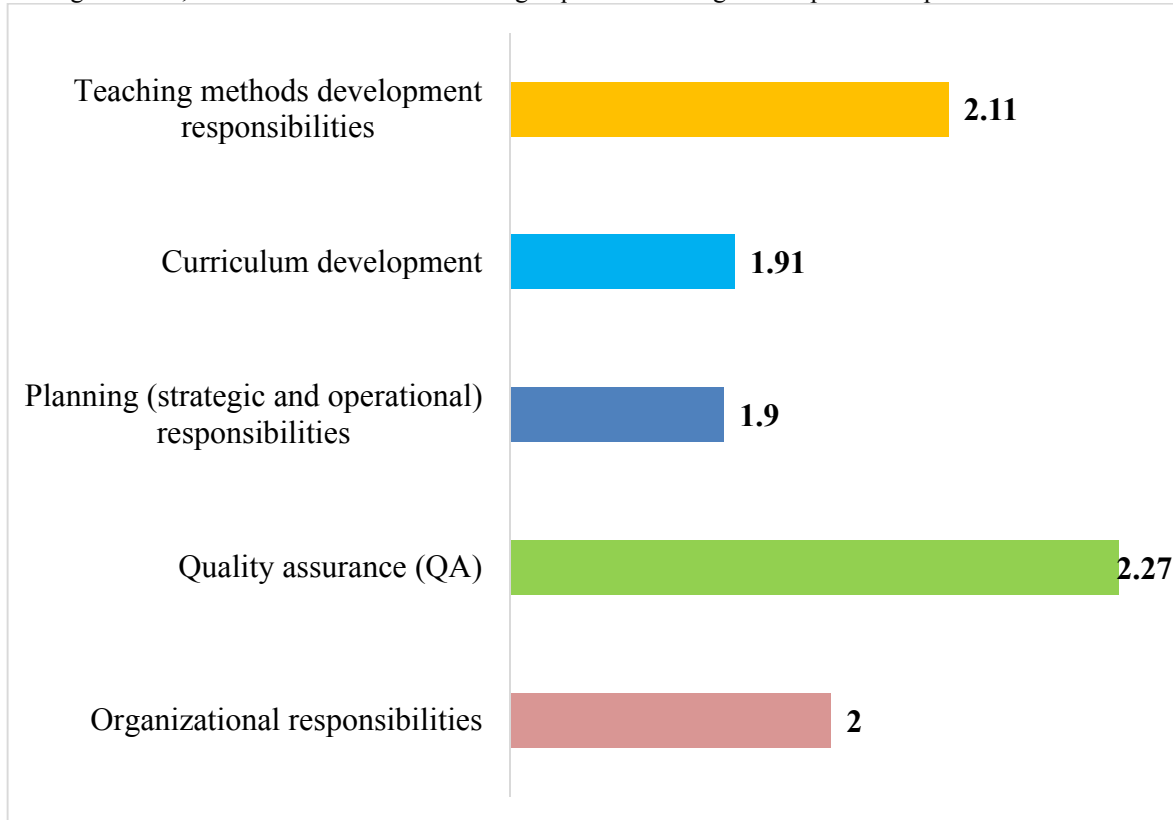

Figure (6): The relative weights of the arithmetic means of pillar one variables

And as also shown in figure (7) the relative weights of the arithmetic means of pillar three variables (Students' technical training and students' assessment of the blended learning process) show that the effective success of the transition to blended learning requires firstly ensuring students' technical training and then assessing students to adapt the blended learning process.
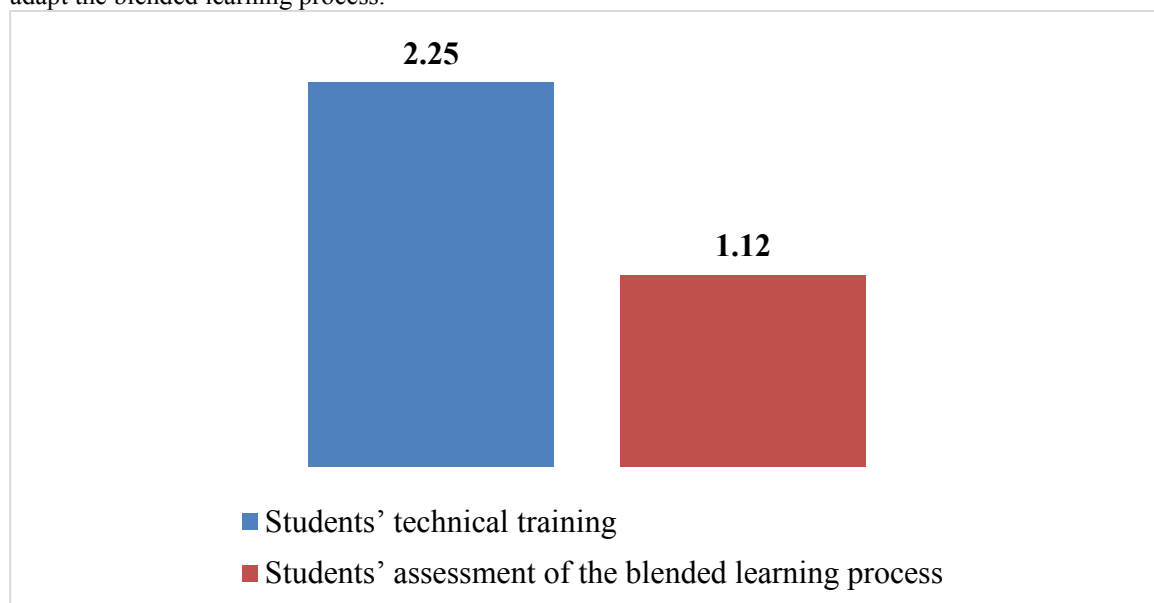

Figure (7): The relative weights of the arithmetic means of pillar three variables

And finally, results show that the most agreed paragraph is (The university must ensure the efficiency of its

technical capabilities) with the mean of (2.97) from the variable (Ensuring adequacy of the online linking between the university and the students) of pillar two; reflecting the necessity of developing the universities technical capabilities to ensure the effectiveness of the transition process towards blended learning. Followed by the paragraph (The university should train all faculty members on the concept of blended learning) with the mean of (2.71) from the variable (Faculty members' technical training) of pillar two also; reflecting the real need of training all faculty members on the concept of blended learning to ensure the effectiveness of the transition strategy towards blended learning.

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