

# THE IMPACT OF BLENDED LEARNING IN IMPROVING FITNESS ELEMENTS AT SIXTH GRADE STUDENTS IN JORDAN

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## ABSTRACT

*The purpose of this study is to find out the impact of using modern teaching methods (blended learning) in the development and improvement of the elements of fitness in sixth grade students, and what it has an active role in that. This study employed a quantitative experimental study approach that consisting of two schools in the directorate of education in Ajlun, Jordan during the first semester of the academic year 2017/2018. Blended learning was implemented in School A as the experimental group, while conventional learning was implemented in school B as the control group. For collecting data, it was conducted experimental teaching with the duration of 14 weeks. In this study, it was conducted the tests of physical fitness elements before, during and after applying the blended learning. The tests were based on the practical based. The study results reported that the means value of practicing physical fitness elements showed a significant improvement using blended learning compared to conventional learning. The blended learning gives a positive and significant impact towards students' achievement in the fitness elements.*

**Keywords:** Jordan, Blended Learning, Conventional Learning, Physical Fitness Elements.

## INTRODUCTION

Technology has played a significant role in educational system and has changed the learning environment in classroom. Therefore, the educational institutions starts to gain the new model of teaching to fulfill some learning objectives such as link their students' needs parallel to new technological institutions, provide more effective leaning activities and promote motivation environment (Tayebinik & Puteh, 2012). In addition, education system nowadays must represent to the scientific progress which constitutes the main axis for all life aspects. In this case, the sample of scientific progress is technology which is not only limited to one aspect of life, but also it has influenced all aspects including education. Therefore, technology may assist the progress of education in many areas (Abu Alreeshh, 2013).

In order to achieve the technology of education goals, The Hashemite Kingdom of Jordan established Jordan Education Initiative (JEI) in 2003. The objective of JEI is to drive the technology into teaching and learning. The JEI also promotes the effectiveness of technology usage to reform school as a place of discovery, creativity, and skills development as well as to encourage Jordanian students to achieve educational potentials (Queen Rania, 2018). However, there are many obstacles that face students and teachers in the education system in schools in Jordan because of lack of experience teachers, the lack in the methods and modern means of

study; and the increase in the number of students in the schools and the lack of number of classrooms as a result of the increase in the population and influx of refugees to Jordan (Al Metwally, 2011). In addition, the schools in Jordan are generally facing lack in the modern techniques, methods and means of education that facilitate and help students to access for information and develop their knowledge (Jordan Education Initiative, 2012).

Fitness has an important and effective role in maintaining human health and building a healthy body where it develops and activates the mental, physical and cognitive ability that helps students to desire to learn and ask-see science in schools. However, although there is a constant care and attention for the educational system in schools in Jordan, but there are, unfortunately, some courses at all stages did not receive any attention by the ministry of education in Jordan. The physical education course is one of among courses that did not receive any attention, in introduction and employment of modern technology means such as Internet, PowerPoint, video, computers and projectors which help students acquire information, develop their knowledge, and methods of practicing physical education and identify their species at any time while they are at homes. In addition, due to an increase in the number of students in the classroom, there is an urgent need to apply this type of education for all students and easy to learn through it (Jordan Education Initiative, 2012). Even some technologies have been introduced in a few primary schools (below the sixth grade) but have not been employed and used in the physical education course due to lack of attention to the benefits and importance of fitness (Deeb, 2012). In Jordan, the sixth grade is important grade because it is the last stage of the basic stages in the education system (Al Nsoor, 2012). In addition, the use of blended learning in physical education course and know their types is very necessary issue because it affects improvement of the level of the elements fitness at the sixth grade students, allowing students to participate in school sports activities and King Abd Allah II Award for Physical Fitness, whereas the best students in the fitness elements are selected to participate, and the winners of students are honored by King Abd Allah II (Al Nsoor, 2012).

### **Blended Learning**

Altlafeh (2016) defined blended learning as the use of modern technology into teaching-learning process by blending goals, contents, resources, and methods into the conventional learning. It is a form of e-learning includes using technologies, communication, and other conventional learning tools (Arnousi & Harbi, 2014). Blended learning concept comes up from the idea that learning needs continuous process in lifetime. It provides various advantages over using any single learning delivery medium alone (Khan, 2005). Additionally, blended learning allows students to possibility study at their own space and time. Moreover, students can have an opportunity to take the responsibility for their own studying (Olejarczuk, 2014).

### **Physical Fitness Elements**

Physical fitness is defined as the kind of fitness that aims to enhance the health and the quality of life, and reduce the risks of the non-transmitted diseases or the diseases known to be related to the lack of movement (Al Arjan, 2015). According to the United States Department of Health and Human Services, physical fitness is defined as *“a set of attributes that people have or achieve that relates to the ability to perform physical activity”*. While fitness is defined in general, as the element that is related to/or affecting the health. It can be the individual's performance ability expressing the efficiency of the circulation and respiratory systems, physical

formation, and the strength, flexibility, and endurance of the skeletal muscles (Vancampfort et al., 2014). The fitness elements can be divided into two main groups. The first group is related to the skills like; agility, strength, speed, and reaction speed. The second group is related to the health like; muscle power, respiratory periodic capacity, muscular capacity, flexibility, and all are related to health, so they all can be improved through the right training, and the one shouldn't be athletic to improve his health fitness (Shteingart & Loewenstein, 2014).

The importance of fitness element in health at different ages is to protect human from the diseases related to lack of movement (Burke et al., 2014); and to use them in the rehabilitation programs of some diseases (Sagi et al., 2014) and, to treat some psychological illnesses like depression, stress, and anxiety (Stanton & Reaburn, 2014). In addition, practicing sports and raising the fitness level increases the social adaptation processes, and shapes the socially balanced character, and it bring positive effect to the academic achievement (Joseph et al., 2014). Nevertheless, according to Alsaqqa (2007), the fitness elements for the sixth grade students in Jordan are, mainly, flexibility, speed, agility, strength and endurance. The flexibility element is one of the important physical traits with a direct effect on the games that need a wide range in the joints movement (Ameen, 2015). Flexibility can be measured through Torso Bending test, Sit and Reach test and or Torso Stretching test (Karim, 2012). The second major element in fitness is speed. According to Wood (2010), speed is an important element to achieve the successful in any kind of sports. The third element is agility. Agility is *"the ability to move and to change a direction and position of the body quickly and effectively while under control"* (Quinn, 2017). There are two types of agility, general agility and specific agility. The general agility is ability to perform a move characterized by diversity accurately on time. While specific agility is to perform a move that is consistent with the duties of the practiced sport (Abdul Sattar, 2013). Strength is also one of the main components of the fitness, which is important to achieve the successful in any kinds of sport (Wood, 2010). Strength is the maximum power, which can be applied against a load. The last major component in fitness in Jordan is endurance. Endurance is the same thing that an athlete has to work on and it is probably the hardest of all the skills to work on because it takes time, it takes energy and it's hard. Endurance is hard, in other words, it is hard mentally and it is hard physically (Robinson, 2017). Hence, in order to cope the cases explained, this study was conducted to find out the impact of using modern teaching methods (blended learning) in the development and improvement of the elements of fitness at the sixth grade students, and what it has a key role in that.

## METHODOLOGY

The methodology of a quantitative research approach was followed to achieve the objectives of this study. However, the study sample consisted of 60 male and female students. It was chosen randomly from the study population during the first semester of academic year 2017/2018. The selected study sample was divided into two similar groups in terms of number of students. There were 30 male and female students from Haddaeq Al Tofollaa mixed school (school A). The group II also consisted of 30 male and female students from Ezzeldeen Osama mixed school (school B). In order to obtain the valid data, the experimental training approach was conducted for 14 weeks. There are two groups in this study, group I and group II. The group I is an experimental group, while the group II is a control group. Blended learning and conventional learning were applied in the school A and school B, respectively. The blended learning was divided into two types, face to face learning and online learning. To measure the impact of using blended learning onto fitness elements, three tests were performed in this study;

pre-test, mid-test and post-test. Pre-test was conducted before implementing the training program, mid-test was conducted after 7 weeks from start training program, while post-test was conducted after finished training program. Tests were performed practically based on the types of fitness elements; speed (50 m-run), flexibility (Sit and Reach test), agility (Shuttle-run test), strength (Push-up test) and endurance (1600 m-run). The fitness element tests were performed in accordance with King Abd Allah II Award in terms of Physical Fitness Standards in Jordan.

## RESEARCH HYPOTHESES

*H0: Blended Learning does not give any impact towards fitness elements improvement and improving knowledge for sixth grade students in physical education course.*

*H1: Blended learning gives a significant impact in improving the level of fitness elements for sixth grade students in physical education course.*

*H2: There will be statistically significant differences between the level of students' improvement in the fitness elements for the school that uses blended learning in the pre-tests and post-tests for favor of the post-tests.*

*H3: There will be statistically significant differences for using blended learning on the level of students' improvement in the fitness elements for favor of the experimental group.*

## RESULTS

The raw scores and other data were entered into SPSS software for analyzing. To analysis the hypothesis of study, some independent and pair t-tests were conduct for result mean of pre-test and mid-test, mid-test and post-test, and pre-test and post-test, respectively. Tables 1 and 2 show the distribution of fitness elements measurements based on the means and standard deviation for experimental group and control group, respectively.

<b>Fitness Element</b>	<b>Measures</b>	<b>N</b>	<b>M</b>	<b>SD</b>
Speed	Pre-test	30	9.79	0.62
	Mid-test	30	8.73	0.48
	Post-test	30	7.77	0.40
Agility	Pre-test	30	12.98	0.72
	Mid-test	30	9.86	0.40
	Post-test	30	8.08	0.96
Flexibility	Pre-test	30	26.87	3.20
	Mid-test	30	32.73	2.50
	Post-test	30	36.67	2.78
Endurance	Pre-test	30	12.04	1.50
	Mid-test	30	8.02	1.13
	Post-test	30	7.34	0.91
Strength	Pre-test	30	23.60	2.36
	Mid-test	30	27.77	2.01
	Post-test	30	31.27	3.08

N: Number of study sample; M: Mean; SD: Standard Deviation.

The paired sample t-test indicated that there was a significant effect of the blended learning on fitness elements for students. The result of tests which conducted before, during and after the blended learning implementation shows the blended learning gave a positive influence

in increase in the level of the physical fitness at the student. Based on results are presented in Table 1, the mean scores of flexibility and push-up tests significantly increased and thereby the mean scores for speed test, agility test and endurance test decreased, indicating the level of students' performance of school A (group I) improved by implementing blended learning. This means that blended learning system has a key role in the improvement of the students' performance in physical education course. In addition, it can be clearly seen as shown in Table 1 that the students' performance in physical fitness elements progressively improved compared to pre-test results of the fitness elements.

<b>Fitness Element</b>	<b>Measures</b>	<b>N</b>	<b>M</b>	<b>SD</b>
Speed	Pre-test	30	9.96	0.38
	Mid-test	30	9.33	0.53
	Post-test	30	8.05	0.56
Agility	Pre-test	30	13.17	0.64
	Mid-test	30	10.28	0.99
	Post-test	30	8.57	0.82
Flexibility	Pre-test	30	26.30	2.45
	Mid-test	30	30.20	2.04
	Post-test	30	35.23	1.30
Endurance	Pre-test	30	12.44	0.98
	Mid-test	30	8.67	1.15
	Post-test	30	7.85	0.91
Strength	Pre-test	30	22.80	3.09
	Mid-test	30	26.23	1.38
	Post-test	30	28.57	1.52

N: Number of study sample; M: Mean; SD: Standard Deviation.

As shown in Table 2, the result of pre-test, mid-test, and post-test of control group (group II) showed that there is a similar trend to experimental group, where the mean scores of flexibility and push-up tests increased and thereby the mean scores for speed test, agility test and endurance test decreased significantly. This shows the level of students' performance of school B (group II) is enhanced during the application of the program training. Accordingly, students' performance in physical education course improves gradually as the training period increases.

*Hypothesis<sub>2</sub> (H<sub>2</sub>)* and *Hypothesis<sub>3</sub> (H<sub>3</sub>)* aim to seek the extent level of students' improvement in the physical fitness elements before and after blended learning implementation. Three paired sample T-Test measures were conducted to compare the impact of blended learning and conventional learning on improving the physical fitness at the students. The averages of pre-test, mid-test and post-test results were calculated for both groups, experimental group and control group. The first step is to investigate the differences between the two groups in the pre-tests. The pre-test measures of group are summarized in Table 3.

**Table 3**  
**DISTRIBUTION MEANS, STANDARD DEVIATIONS AND T-TEST BETWEEN THE GROUPS**  
**IN THE PRE-TEST OF THE FITNESS ELEMENTS**

Fitness Element	Group	N	M	SD	% Mean Difference	T	P
Speed	Experimental	30	9.79	0.62	1.71	1.24	0.217
	Control	30	9.96	0.38			
Agility	Experimental	30	12.98	0.72	1.44	1.07	0.287
	Control	30	13.17	0.64			
Flexibility	Experimental	30	26.87	3.20	-2.17	0.77	0.445
	Control	30	26.30	2.45			
Endurance	Experimental	30	12.04	1.50	3.22	1.22	0.264
	Control	30	12.44	0.98			
Strength	Experimental	30	23.60	0.98	-3.51	1.12	0.264
	Control	30	22.80	3.09			

N: Number of study sample; M: Mean; SD: Standard Deviation; T: T-Test; P: Significant difference.

Table 3 shows the differences results between the two groups in the pre-measures means. The obtained T-Test values are 1.24, 1.07, 0.77, 1.22 and 1.12 for speed element, agility element, flexibility element, endurance element and strength element, respectively. As displayed in Table 3, the significance values are greater than 0.05, indicating no significant statistical differences between the two groups in the pre-measure (pre-test) of fitness elements. Based on the results of pre-measure, as expected, the students had the same level in the physical fitness elements. Nevertheless, as a next step, the mid-test measurements were conducted. The results of intermediate measures (mid-tests) are shown in Table 4.

**Table 4**  
**DISTRIBUTION MEANS, STANDARD DEVIATIONS AND T- TEST BETWEEN THE GROUPS**  
**IN THE MID-TEST OF THE FITNESS ELEMENTS**

Fitness Element	Group	N	M	SD	% Mean Difference	T	P
Speed	Experimental	30	8.73	0.48	6.43	4.61	0.000
	Control	30	9.33	0.53			
Agility	Experimental	30	9.86	0.40	4.09	2.14	0.036
	Control	30	10.28	0.99			
Flexibility	Experimental	30	32.73	2.50	8.38	4.29	0.000
	Control	30	30.20	2.04			
Endurance	Experimental	30	8.02	1.13	7.50	2.20	0.031
	Control	30	8.67	1.15			
Strength	Experimental	30	27.77	2.01	-5.87	3.44	0.001
	Control	30	26.23	1.38			

N: Number of study sample; M: Mean; SD: Standard Deviation; T: T-Test; P: Significant difference.

Table 4 illustrates the results of the two groups in the intermediate measures for physical fitness elements. The achieved T-Test values are 4.61, 2.14, 4.29, 2.20 and 3.44 for speed element, agility element, flexibility element, endurance element and for strength element, respectively. Moreover, the significance values for the fitness elements are less than 0.05 as presented in Table 4, indicating significant statistical differences between the two groups in the mid-test measures of the fitness elements. These differences in the students' performance were in favor of the experimental group (group I) which showed better means compared to control group

(group II). Thus, it can be concluded that blended learning has a positive and significant influence on the improvement of level of the physical fitness elements at students. Furthermore, the results of post-test measures are identified to confirm the statistical differences between the group I and group II. The results of post-test analysis are presented in Table 5.

<b>Fitness Element</b>	<b>Group</b>	<b>N</b>	<b>M</b>	<b>SD</b>	<b>% Mean Difference</b>	<b>T</b>	<b>P</b>
Speed	Experimental	30	7.77	0.40	3.48	2.27	0.027
	Control	30	8.05	0.56			
Agility	Experimental	30	8.08	0.96	5.72	2.11	0.039
	Control	30	8.57	0.82			
Flexibility	Experimental	30	36.67	2.78	-4.09	2.55	0.013
	Control	30	35.23	1.30			
Endurance	Experimental	30	7.34	0.91	6.50	2.19	0.032
	Control	30	7.85	0.91			
Strength	Experimental	30	31.27	3.08	-9.45	4.29	0.000
	Control	30	28.57	1.52			

N: Number of study sample; M: Mean; SD: Standard Deviation; T: T-Test; P: Significant difference.

Table 5 displays the results of the basic and essential differences for group I (experimental) and group II (control) in the post measures (post-tests) means of the physical fitness elements. The T-Test values are 2.27, 2.11, 2.55, 2.19 and 4.29 for speed element, agility element, flexibility element, endurance element, and strength element, respectively. These significance values are less than 0.05 as listed in Table 5. This means there are significant statistical differences between the group I and group II in the post measures means. Such differences are in favor of the group I which revealed better means values compared to group II means. Accordingly, based on the results above, there are statistically significant differences between mean scores of the students in physical fitness elements are in favor of the post-test. This indicates that  $H_0 \neq H_1$  and  $H_0 \neq H_2$ , thus,  $H_0$  is rejected, and  $H_1$  and  $H_2$  are accepted. Moreover, there are statistically significant differences for using blended learning to achieve fitness elements that leads to a better academic level compared to conventional learning, indicating the results are in favor of the experimental group, thus,  $H_3$  is accepted. To sum up, the implementation of blended learning has a positive impact on the students' performance in fitness elements in physical education course more than the conventional learning, it is therefore recommended to apply the blended learning in all stages of education in schools, especially in sixth grade.

## CONCLUSION

This study was aimed to find out the impact of using blended learning as a new learning type on improvement of level of the fitness elements at students in physical education course. The study result showed that blended learning has an impact on improvement of the physical fitness at students. Based on the findings and discussions, the following conclusions can be drawn:

1. The implementation of blended learning gave a positive and significant impact towards students' performance and achievement in the fitness elements in physical education course more than the conventional learning, it is therefore recommended to apply the blended learning in all stages of education in schools, especially in sixth grade.

2. The results of pre-test, mid-test and post-test of blended learning approach showed the students' performance level in physical fitness significantly improves during training program.
3. The result of three paired tests of the conventional learning group showed the conventional learning has a role and impact in improving students' physical skills, but this impact is still far less than the blended learning impact.

## RECOMMENDATIONS

As technology has started to be implemented in educational system in Jordan, the Ministry of education should provide more support in terms of policy maker to establish technology equipment's to schools. For example, installing the Internet in schools, or providing technology tools in schools. It is expected that the use of internet is not limited only to teachers but also to students. As a result, students will gain the benefits of using the Internet to increase their knowledge not only in physical fitness but in all aspects of life. Blended learning is the kind of system of learning where the conventional learning and online learning are carried out together. Based on this study results, it has showed the positive contribution to students in terms of increasing their knowledge. In the system of blended learning, students are not only passive to study in class, but it also encourages students to be more active in the progress of teaching and learning. It is therefore recommended to apply the blended learning in other courses in all stages of schooling in schools.

This study encourages and recommends the use of blended learning as a new learning method approach for offering the active learning which is able to increase achievement of students and their knowledge in Jordan. The learning approach recommended in this study combines improve development of educational system and modern technology in accordance with recommendations of the Ministry of Education, Jordan.

In terms of using technology in schools, school administration and teachers also play a major role in managing the application of technology to students. In this case, there is still a need to restrict the use of the Internet to avoid using the negative Internet problem. However, this does not mean that students are not allowed to use technology tools at schools. It is expected that students are taught in terms of being positive internet users. Nevertheless, the positive technology policy in school is one of the school administration roles to achieve the benefits of technology in education. Therefore, it is recommended to develop plans by the schools administration in order to guide students towards using the internet correctly and positively.

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