



Effectiveness Using of Flipped Learning Strategy on Some Skillful Learning Aspects of Physical Education Lesson

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Abstract

The study aimed to learn some aspects of physical education lesson through using of flipped learning strategy. The researcher used the experimental method by experimental design of two groups (experimental and controlled group), the study was conducted on a sample of second division female students in faculty of physical education using pre-post measurements for each group on a sample of (60) female students with 14.78% of the total population (406 students) in the year 2017/2018, results indicated that using of flipped learning strategy led to a higher level of skillful learning under research (aspects of physical education lesson) compared to the explanation and presentation method.

Keywords: Strategy, Flipped learning, Skillful learning, P.E lesson.

Introduction

A flipped learning is an instructional strategy and a type of blended learning that reverses the traditional learning environment by delivering instructional content, often online, outside of the classroom. It moves activities, including those that may have traditionally been considered homework, into the classroom. In a flipped learning, students watch online lectures, collaborate in online discussions, or carry out research at home while engaging in concepts in the classroom with the guidance of a mentor. [31][35]

In the traditional model of classroom instruction, the teacher is typically the central focus of a lesson and the primary disseminator of information during the class period. The teacher responds to questions while students defer directly to the teacher for guidance and feedback. In a classroom with a traditional style of instruction, individual lessons may be focused on an explanation of content utilizing a lecture-style. Student engagement in the traditional model may be limited to activities in which students work independently or in small groups on an application task designed by the teacher. Class discussions are typically centered on the teacher, who controls the flow of the conversation. Typically, this pattern of teaching also involves giving students the task of reading from a textbook or practicing a concept by working on a problem set, for example, outside school. [34]

Flipped learning also redefine in-class activities. In-class lessons accompanying flipped learning may include activity learning or more traditional homework problems, among other practices, to engage students in the content. Class activities vary but may include: debate or speech presentation, current event discussions, peer reviewing, project-based learning, and skill development or concept practice [8][33] Because these types of active learning allow for highly differentiated instruction,[4] more time can be spent in class on higher-order thinking skills such as problem-finding, collaboration, design and problem solving as students tackle difficult problems, work in groups, research, and construct knowledge with the help of their teacher and peers.[11] Flipped learning has been implemented in both schools and colleges and been found to have varying differences in the method of implementation.[4]

Benefits of a Flipped Classroom

There are various benefits attributed to the idea of utilizing the Flipped Classroom approach, some including:

- 1- A college reading empirical study identifies Flipped Classroom's approach at including all forms of learning (i.e. oral, visual, listening, hands on, problem solving, etc.).[23]
- 2- Rather than learning in a traditional classroom setting, Flipped Classroom uses a more application-based

approach for students (i.e. hands on and problem solving activities).[13][32]

3- The accessibility of Flipped Classroom is extremely convenient, especially for students that would face difficulties in traveling to the physical classroom. Such students would still have the foundational information of the course at hand via online.[18]

4- Communication is greatly emphasized in a Flipped Classroom setting, essentially referring to: student-student and student-teacher interactions.[5]

5- Flipped Classroom utilizes a student-centered teaching modeled in order to ensure that the course is primarily aimed at contributing to the student's overall success in obtaining a proper, effective education.[5]

6- Essentially avoids the overarching idea of "cramming" for exams and forgetting the information post-examination, as it encourages students to understand the underlying rationale behind the information provided being provided to them.[30]

According to the above, this study is based offering content of lessons across the Internet through flipped learning strategy for the purpose of learning of skillful aspects in physical education lesson, The researcher observation during her work at the Faculty of Physical Education that Methods and means used to learn learning skillful aspects of physical education lesson lacks the motivation of the learner and the desire to learn more skills, as period after using these methods the learner sense monotony and boredom, these traditional methods doesn't commensurate with what the world reached of technological uses and applications in the educational process.

Thus, this research is based on the provide alternatives for teaching methods and content through this study (flipped learning strategy via the Internet) to find alternative paths for learners to learn and raise the educational process level.

Research objective:

The aim of this study was using of flipped learning strategy and monitor its effectiveness on learning of skillful aspects in physical education lesson for faculty of physical education female students.

Research hypothesis:

1- There are statistically significant differences between the average of the pre-and post-measurements for

experimental group (flipped learning strategy group) in the level of learning skillful aspects under research in favor to the post measurement.

2- There are statistically significant differences between the average of the pre-and post-measurements of the controlled group (explanation and presentation group) in the level of learning skillful aspects under research in favor to the post measurement.

3- There are statistically significant differences in post measurements between the two experimental, controlled groups (flipped learning strategy, traditional method) in the level of learning skillful aspects under research in favor to the experimental group (flipped learning strategy).

Methodology

Method:

The experimental approach was used for two groups, one experimental and the other controlled, using pre- post measurements for each group.

Research sample:

The research society consisted of (406) female students of the second class students in faculty of physical education in Gezira - Helwan university for the academic year 2017/2018. The basic sample was randomly selected from the female students of the research community. The total number of the sample was (60) female students with 14.78% of the total population, and the sample was divided as follows:

- Experimental group: uses flipped learning strategy in learn skillful aspects under research, (30) female students.

- Controlled group: uses the traditional method "explanation and presentation" in teach skillful aspects, (30) female students.

- (20) students of the total research community and outside the basic research sample as exploration sample. Thus, the basic sample and outside the basic research sample consisted of (80) female students by 19.70% of the total population.

Tools:

A. Data recording forms: Forms for recording the data for the research sample were prepared. (Appendix 1)

B. IQ test: Intelligence and mental abilities test was used, secondary and university stage verbal intelligence test, prepared by Gabir, Mahmoud (2007). (Appendix 2).[12]

Table (1)
Validity and stability of IQ test
N =14 (test validity), N =20 (test stability)

Variables	unit	upper 7=N1 (33%)		lower 7=N2(33%)		Mean differences	T. value
		M	±SD	M	±SD		
Intelligence and mental abilities	Degree	90.84	1.99	85.61	1.84	5.23	3.22*
Variables	unit	1st		2n.d		CC	
		M	±SD	M	±SD		
Intelligence and mental abilities	Degree	86.53	1.90	87.20	1.94	0.940*	

The value of t-table at a significant level (12, 0.05) = 2.18 (two directions), the t-value (cc) at a significant level (18, 0.05)= 0.475 (two directions).

It is clear from Table (1) that there are statistically significant differences between the two upper, lower groups in favor of the upper group, indicating the validity of the test. It is also evident that there is a correlation between the first and second applications indicating the stability of the test.

C. Evaluation form of skillful aspects (physical education lesson): The form was used evaluation of physical education lesson, prepared by Eman Abdel-Halim 2014 (Appendix 3).[9] The form was purposed to learn skillful aspects in physical education lesson for physical education female students. The form was prepared in 2014 through the following references: (Zeinab, Ghada 2010), (Abdallah

A., Rehab A. 2014), (Essam 2014), (Moustafa, Fathy 2002), (Zaghloul et al. 2001) and (Nawal, Mirvat 2002). [1][10][24][26][27][37]

The form was presented to the experts at the faculties of physical education (appendix 4) for the purpose of identifying the experts' opinion. The percentage of the experts' agreement was calculated on phrases of the form. The agreement rates on the phrases ranged from 75% to 100%.

Scientific transactions of the form:

Table (2)**Validity of Internal Consistency of the form (N= 20)**

phrases	Correlation coefficient	phrases	Correlation coefficient	phrases	Correlation coefficient	phrases	Correlation coefficient
1	0.574	25	0.681	49	0.658	73	0.649
2	0.844	26	0.696	50	0.681	74	0.692
3	0.736	27	0.647	51	0.674	75	0.643
4	0.694	28	0.685	52	0.722	76	0.684
5	0.784	29	0.636	53	0.813	77	0.635
6	0.81	30	0.648	54	0.679	78	0.647
7	0.545	31	0.675	55	0.567	79	0.677
8	0.656	32	0.745	56	0.686	80	0.774
9	0.571	33	0.691	57	0.576	81	0.785
10	0.691	34	0.845	58	0.699	82	0.852
11	0.574	35	0.694	59	0.482	83	0.676
12	0.617	36	0.653	60	0.625	84	0.685
13	0.536	37	0.657	61	0.488	85	0.629
14	0.775	38	0.848	62	0.797	86	0.848
15	0.583	39	0.671	63	0.586	87	0.569
16	0.588	40	0.567	64	0.568	88	0.497
17	0.596	41	0.818	65	0.54	89	0.845
18	0.744	42	0.844	66	0.694	90	0.748
19	0.574	43	0.845	67	0.768	91	0.847
20	0.647	44	0.865	68	0.812	92	0.677
21	0.698	45	0.874	69	0.765	93	0.91
22	0.648	46	0.766	70	0.825	94	0.784
23	0.739	47	0.719	71	0.796		
24	0.715	48	0.784	72	0.748		

The t-value at a significant level (18, 0.05)= 0.475

It is clear from Table (2) that all the phrases has statistically significant greater than 0.475 and therefore was accepted all the terms and phrases of the form.

Table (3)**Stability of of the form (N=20)**

Axis	First half		Second half		half – stability Coefficient	Total stability coefficient
	M	±SD	M	±SD		
1	20.66	4.38	20.48	4.4	0.845	0.916
2	34.28	4.67	33.58	4.6	0.837	0.911
3	3.25	0.04	3.64	0.48	0.882	0.937
Total	54.67	4.44	53.41	4.28	0.864	0.927

The t-value at a significant level (18, 0.05)= 0.475

- It is clear from Table (3) that there is a correlation between the first and second half, indicating the stability of the form.

- Thus, the form was applied on the basic research sample before and after the implementation of the educational units on the experimental and controlled group.

Flipped learning strategy design:

Flipped learning strategy was designed as shown below:

1- Objective of Flipped learning strategy: The flipped learning strategy was aimed to learn skillful aspects in physical education lesson for physical education female students.

2- Mental and skillful level of the research sample: The mental aspect of the study sample was determined by Intelligence and mental abilities test (Appendix 2). The skillful aspect was determined by the evaluation form of physical education lesson. (Appendix 3).

3- Flipped learning strategy content: The flipped learning strategy content of the evaluation form of skillful aspects (physical education lesson) was determined through the following scientific references (Eman Abdel-Halim

2014)[9], (Abdallah A., Rehab A. 2014)[1], (Zeinab, Ghada 2010)[37], (Essam 2014)[10], (Zaghloul et al. 2001)[24], (Nawal, Mirvat 2002)[27], (Moustafa, Fathy 2002)[26] by including some multimedia; videos, pictures and texts in A web site contains skillful aspects of physical education lesson, "http://ahmedthussam.wixsite.com/pecb-sports", The site consists of the following contents:

- The main page.
- Pause during video playback.

Some illustrations of the flipped learning strategy website:

Figure (1)

Model of flipped learning strategy site



Contents of physical education lesson, including the following:

- The introductory part of the lesson (including the preparation of physical education lesson, as well as the identification of the sections of the call, conditions and configurations of physical education lesson and how to prepare the tools, in addition to warm up and physical preparation and exercises).
- The main part of the lesson (including educational and practical activities).
- The final part of the lesson (including relaxation, greeting and departure).

4- Style of teaching in flipped learning strategy: The teaching style used in the learn was the individual learning method through the use of each individual student for the Internet.

5- Site features:

- Display and download text, images, graphics and video on full screen.
- Sound control during video playback.
- Repetition of images, graphics and video more than once.



7- The experts' opinion (Appendix 4) of flipped learning strategy and agreement was obtained on a web site was designed, and the experts agreed to instructions and contents of the flipped learning strategy website (Appendix 5-A).

8- The exploratory study: The flipped learning strategy was tested by presenting the site on the sample of the exploratory study in order to identify the clarity of the pictures, drawings and video were flipped learning strategy contained on the website. The result of this

experiment was the clarity of all the contents of the flipped learning strategy.

Distribution of the study content on the total units for two research groups:

The time distribution of the teaching unites was standardized for the two groups (experimental and traditional group), and the difference was only in the learning method for each group. The experimental group was learn by the flipped learning strategy via the website,

The controlled group was through explanation and presentation method. (Appendix 5-B)

Application:

Flipped learning strategy, traditional method (explanation and presentation) were implemented on the basic study sample, as shown in table (4), and as follow:

Table (4)

Time distribution of the two research groups

Content	Time
Program Duration	10 weeks
Number of units (lessons) per week	2 units in week
Unit Number	20 units
Unit time	60 m

Flipped learning strategy, traditional method (explanation and presentation) were implemented as follow:

A) Method of implementing flipped learning strategy:

- First, the students seeing the explanation, information, knowledge and educational videos of the skillful aspects of physical education lesson on the website (at home, for example).
- Students know through the educational site or through the researcher what is required preparation of the duties and tasks for the part to be implemented in college.
- The implementation of the students for what was seen in the lecture in college.
- The researcher observing the students' performance during the implementation of what was seen. The researcher correct for

errors and provide feedback and adjust the performance of students.

B) Implementation of the traditional method (explanation and presentation):

- First, the researcher explain and present information, knowledge of the skillful aspects of physical education lesson.
- The implementation of the students for what has been explained and presented by the researcher in the lecture in college.
- The researcher observing the students' performance during the implementation of what was explained and presented. The researcher correct for errors and provide feedback and adjust the performance of students.

Moderation of sample distribution:

Table (5)

Distribution moderation for basic and exploratory research sample (N=80)

Parameters	Unit	Statistical analyses			
		Mean	±SD	Median	SK
Age	year	18.69	0.97	19.00	-0.96
Intelligence	degree	87.94	5.37	88.00	-0.03
Evaluation form of skillful aspects	degree	103.25	5.69	103.00	0.13

Table (5) shows that the values of Skewness coefficients ranged from $\pm (3)$, indicating the moderated distribution of the basic and exploratory sample.

Sample equivalence (Pre- measurement):

Table (6)
Equivalence of the two research groups (tribal measurements) (N=60)

Parameters	Experimental 30=N		Controlled 30=N		Mean Differences	T
	M	SD±	M	SD±		
Age	18.65	0.72	18.74	0.73	0.09	0.84
Intelligence	87.95	5.33	87.92	5.31	0.03	0.67
Evaluation form of skillful aspects	103.2	5.62	103.31	5.66	0.11	0.98

T Table value at a significant level (58, 0.05) = 2.01 (two directions)

Table (6) shows that all the values of the previous variables are not statistically significant, indicating that there are no statistically significant differences and thus the equivalence of the two research groups.

Results

Table (7)

Significance of the mean differences between the pre- post and post-post measurements of the two groups (experimental and controlled group) in skillful aspects (physical education lesson)

Parameters	Experimental (flipped learning strategy) N30=1				Mean Differences	T value
	Pre		Post			
	M	SD±	M	SD±		
Evaluation form of skillful aspects	103.20	5.62	201.38	15.67	98.18	37.58*
Parameters	Controlled (explanation and presentation) N30=2				Mean Differences	T value
	Pre		Post			
	M	SD±	M	SD±		
Evaluation form of skillful aspects	103.31	5.66	192.58	14.28	89.27	32.53*
Parameters	Post N60=				Mean Differences	T value
	Experimental		Controlled			
	M	SD±	M	SD±		
Evaluation form of skillful aspects	201.38	15.67	192.58	14.28	8.80	12.58*

T Table value at a significant level (29, 0.05) = 1.70 (one direction)

T Table value at a significant level (58, 0.05) = 1.67 (one direction)

Table (7) shows statistically significant differences between Pre-Post measurements of both experimental and controlled groups, as well as in post measurements between the two groups at a significant level of 0.05.

Discussion

First research hypotheses:

The results of Table (7) show that there are statistically significant differences between pre and post mean values of the experimental group in learn skillful aspects in favor to the post measurement.

These results indicate that the flipped learning strategy via the website was a positive effect on the skillful level under research (skillful aspects). This indicates that the flipped learning strategy led to the correct perception of how to perform and element physical education lesson. The images, drawings, texts and videos were attached to the educational site was a positive result on the learning process, which is how to implement the introductory, the main and the final part in physical education lesson

The previous results is consistent with many studies which was indicated that use of the flipped learning strategy in the educational process shows an improvement and effectiveness in the learning process in general, such as the

study of (Al-Zahrani 2015), (Turner, and Meyer 2009), (Lage, Platt, & Treglia 2010). [2][19][28]

Thus, the researcher attributed the reason of differences between pre and post measurements to the experimental variable only, which is the flipped learning strategy via the Internet. The researcher also attributes the progress in learning the skillful aspects under research to relying on the flipped learning strategy and its various media (texts, pictures, graphics, audio and video) and thus a positive effect on variables of research (physical education lesson) and this is due to the attractiveness and effectiveness of flipped learning strategy via the Internet.

Thus, the first hypothesis is achieved, which stated that there are statistically significant differences between the pre-and post-measurements for experimental group (flipped learning strategy group) in the learn level of skillful aspects under research in favor to the post measurement.

Second research hypotheses:

The results of Table (7) show that there are statistically significant differences between pre and post mean values of the controlled group in learn skillful aspects in favor to the post measurement.

These results indicate that the explanation and presentation method was a positive effect on learn of the skillful aspects under research. This indicates that the traditional method of teaching was led to students improvement in the information and concepts related to these parts (introductory, main and final part) of the lesson. Thus, Improved and effective learning in implement of physical education lesson.

The previous results was indicated that the method of explanation and presentation leads to progress and improvement in the educational process, where the teacher relied on the explane of information and content understanding of the performance through verbal explanation and a model presentation of how to implement and this was led to effectiveness and positive on implement of physical education lesson for the controlled group. This is consistent with Zakia Kamel, Nawal Shaltout and Mervat Khafaja (2010)[36] where they pointed out that the method of explanation and presentation has a positive effect on the learning of skills under research.

Accordingly, This proves that teaching through explanation and presentation leads to higher level of learning and performance as a result of the practice of what has been explained and presented by the teacher.

Thus, reflected in the level of students' performance during the learning process.

This indicates that the method of explanation and presentation was led to the effectiveness and positive in the educational process according to the results of statistically significant differences between pre and post measurement.

Therefore, the second hypothesis is achieved, which stated that there are statistically significant differences between the pre-and post-measurements for the controlled group (explanation and presentation group) in the learn level of skillful aspects under research in favor to the post measurement.

Third research hypotheses:

The results of Table (7) show that there are statistically significant differences in post mean values between the two groups (experimental, controlled) in the level of learn skillful aspects, where the value of calculated (t) (12.58) is greater than the value of table (t) at a significant level (0.05), which indicates the higher level of learn for the experimental group (flipped learning strategy) than the controlled group (explanation and presentation).

The researcher attributes the progress of the experimental group compared to the controlled group to the interaction between the student and the learning through the flipped learning strategy via the internet which the students controlled what they are subjected to and controlled the sequence of the presentation, time, in addition to the formation of the optimal perception of the performance of skillful in how to emplement the skillful aspects in physical education lesson. Thus, provide the student feedback, which was helped to develop his movement perception, This is not available to students of the controlled group. Therefore, the effectiveness of flipped learning strategy via the website compared to the explanation and presentation method. This is in line with Mohamed Sarhan, Al-Tayeb Haroun (2015)[25], Marcey, DJ, & Brint (2012)[21] that using flipped learning allows students to spend more time learning and pre-preparing to parts of the lesson by watching recorded video In advance, and this gives sufficient time to prepare the parts of the physical education lesson and allow more time for application in the college (lecture) rather than explanation. Thus, acquire and refine and develop skillful aspects under research (implementation of physical education lesson parts), which ensures the good use of the time of the lecture practical.

This proves that using flipped learning strategy has a positive effect on emplement of physical education lesson,

because of the attractiveness and effectiveness of using the flipped learning via the site. Thus, increase the element of suspense and tendency towards learning by students' interests raising and motivate them to exert effort compared to the traditional method in teaching which did not have these characteristics, which led to the effectiveness and positive learning through using flipped learning strategy via the internet compared to the method of explanation and presentation.

The above is consistent with the study both of Chastre, Edouard (2015)[16], which indicated that the using of multimedia and technology in general in the educational process has effective in learning the skills under research because of the attractiveness and effectiveness of multimedia e-studies compared to others traditional methods.

Thus, it is clear from the above that flipped learning strategy using the Internet has a positive effect on the skillful aspects of physical education lesson compared to the controlled group, and this is consistent with the study results: (Atkins 2013), (Jaster 2013), (Johnson & Renner 2016) which have pointed out that the using the flipped learning strategy leads to learning of different skills in a positive way compared to explanation and presentation method. [6][15][17]

Therefore, the third hypothesis is achieved, which stated that there are statistically significant differences in post measurements between the experimental and controlled groups for the learn level of skillful aspects under research in physical education lesson in favor to the experimental group (flipped learning strategy).

Conclusions

1- Flipped learning strategy using the Internet, explanation and presentation method have effective on learning skillful aspects in physical education lesson (introductory, main and final part of the lesson).

2- Flipped learning strategy via the Internet has a more effective effect on learning skillful aspects of physical education lesson compared to the traditional method in teaching (explanation and presentation method).

Recommendations

1- Encouraging the using flipped learning strategy because of its positive effect in learn skillful aspects of physical education lesson.

2- Introducing learning through flipped learning strategy within the curricula of the scientific subjects in the faculties of physical education.

3- Conducting further studies on the effectiveness of flipped learning strategy through the internet in other cognitive and skillful aspects.

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