THE EFFECTIVENESS OF OBSTETRICS AND GYNECOLOGY FLIPS THE CLASS ON PERFORMANCE AND FEEDBACK OF 5TH-YEAR FEMALE MEDICAL STUDENT AT UMM AL-QURA UNIVERSITY IN 2014

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Abstract- Background: The traditional way of teaching by lectures is one type of teaching where the students sit in a class listening to a speaker. A flipped classroom is a new modality of teaching based on preparation of the topics by students before the class then discussing the important and difficult points with the monitor in small groups. The main objective of this study is to determine the effectiveness of Obstetrics and Gynecology flip the class on performance among 5th-year female medical student at Umm Al-Qura University in 2014.
Method: A cross-sectional study was conducted on 136 students at Umm Al-Qura University, Makkah, Saudi Arabia. Some Obstetrics and Gynecology topics were chosen to be including in this study as a flip the class and another as a traditional lecture. Assessing the performance in each way were determined by comparing marks of the students in multiple choice question (MCQ) and objective structured clinical examination (OSCE) in the topics related to each way of teaching. Feedback and satisfaction of students also considered in this study.
Result: the performance in flip the class was better than a traditional lecture in both ways of assessment. More than 50% of students who participated in the questionnaire for feedback were satisfied with flip the class as a way of teaching.
Conclusion: flips the classroom a new teaching modality. Recommended to be applied in the medical teaching. It enhances the learning outcome of students and improves analytical skills for students.

Index Terms- Flip the classroom, lecture, Obstetrics and Gynecology.

I. INTRODUCTION

There is a difference between these words: teaching and learning. Teaching defined as delivering and imparting knowledge and skills while learning defined as what students do and get from a teacher. There is a relation between teaching and learning, for that the ways of teaching changeable to improve students' learning. [1] Teaching by lectures giving by the teacher is one way of teaching which is the oldest and commonest method. Other different methods of teaching including Discussion groups conducted by selected student chairpersons, Recitation oral questions by teacher answered orally by students, Presentations by student panels from the class, Flip the class...etc. [1] Flip the classroom one of the new methods in teaching and the pioneers of this method are Jonathan Bergmann and Aaron Sams. [2] Both of them are high school science teachers at Woodland Park High School in Woodland Park, Colorado. [2] In this new modality for teaching there is a reversed teaching method in which students are teaching themselves at home using online lectures and videos, then they are discussing the assigned problem within small groups under tutor supervision. [2] While the traditional teaching; the teachers are the main source of learning where the transmission of the information is a unidirectional way from teacher to students with less student effort and less interaction. [3]

The aim of this study is comparing between two ways of teaching; the traditional method and flip the classroom in Obstetrics and Gynecology topics by determining the difference in performance among 5th-year female medical student at Umm Al-Qura University (UQU).

II.METHOD

Fifth-year female students (n=137) were involved in both Fifth-year female students (n=137) were involved in both flip the class and traditional lectures during the Obstetrics and Gynecology course at Umm Al-Qura University in 2014. the Obstetrics and Gynecology staff divided the lectures of Obgyne course into two groups each group has 8 lectures which are equal in its importance and that have the same value in the final exam question distribution. Eight lectures of flip the class has been chosen were (Intrauterine growth retardation, Hypertensions in pregnancy, Contraception, Molar pregnancy, Preterm labor, Gestational diabetes, recurrent pregnant loss and Rh incompatibility) on other hand; the traditional lectures were (Premature rupture of amniotic membrane, Maternal adaptation, Infertility, Ectopic pregnancy, Post-partum hemorrhage, Abnormal uterine bleeding, Endometrial Cancer and Multiple pregnancies. Each lecture of flip the class designed by UQU Obstetrics and Gynecology staff of teaching

to have videos or recorded lecture with some reading material such as: (link to papers, articles or electronic power point lecture) with an assignment at the end. The student received these materials a week before the day of discussion to have enough time preparing and solving the assignment. At the day of discussing the students divided into small groups and each group including around 18 students with a mentor (Obstetrics and Gynecology staff) to discuss and solve the questions related to that topic. The role of the mentor was to facilitate and guide the discussing, answer the confusing questions raised from the student and to correct the mistakes. While the traditional lectures were held in the classroom, all students attend together (n=137) to listen to teacher with power point based presentation.

In general; of the Obstetrics and Gynecology course there is tow assessment tools; first one is multiple choice question (MCQ) which was assessed knowledge and the second one is an objective structured clinical examination (OSCE) which was assessed clinical applying skills. There are 60 MCQs questions for Obstetrics and Gynecology course, 16 questions out of them were chosen to be including in this research. Eight questions have been chosen from four flip the class topics which were (Intrauterine growth retardation, Hypertensions in pregnancy, Contraception, and Molar pregnancy) and eight questions were chosen from other four traditional lectures (Premature rupture of amniotic membrane, Maternal adaptation, Infertility and Ectopic pregnancy). The other four lectures of flip the class (Preterm labor, Gestational diabetes, recurrent pregnant loss and Rh incompatibility) with the four remaining traditional lectures (Post-Partum hemorrhage, Abnormal uterine bleeding, Endometrial Cancer and Multiple pregnancies) were chosen to design a ten OSCE stations. There were four stations flip the class, four stations traditional and tow rest station. Then we used the grades obtained from flip the class question to compare them with traditional in both OSCE and MCQS.

For feedback and satisfaction assessment we designed and modified a self-administered questioner and (n=108 out of 137) participated in filling the questioner.

Statistical Analysis
Statistical analysis was performed using SPSS 21.0 Windows (IBMInc, USA). Numerical data was presented as means ± standard deviation and categorical data were presented as percentages.

III.RESULT

136 of female students were involved in this study. There was statistically significant difference between flip the class (13.39±2.69) and traditional lectures (12.38±2.59) regardingMCQ grades p-value=0.000. Also, it was a significant difference when comparing flip the class and traditional lectures regarding OSCE. [Table 1]
Regarding student's percentage scores, high grade (80% to 100%) were recorded more in flip the class. [Table 2]
There was statistically positive correlation between overall assessment and total flip the class score ($r=0.829$; pvalue< 0.01). [Figure 1] More than 50% of students who participating in filing feedback form were satisfied with flip the class as a way of teaching. [Table 3]

IV.DISCUSSION

This study was designed to assess the performance of students in flipped classroom lectures versus traditional lectures for 5th-year female students at Umm Al-Qura University 2014.

According to our result flip the class has better-leaning outcome than a traditional lecture in both ways of assessment which were Multiple Choice Question (MCQ) and Objective Structure Clinical Examination (OSCE). This result could be because in flip the class modality of teaching there is a reversed teaching where students are teaching themselves at home using different methods as voice recorded, power points, scientific links as references then they solve some question to discussed what they learned in a small group at the classroom. This way enhances the student's activity, creativity and stimulates their critical thinking by reversed the pyramid of Bloom's Taxonomy which was discovered in 1956 by Benjamin Bloom. [4] [Figure 3,4] Pyramid of Bloom's Taxonomy is a way of distinguishing the fundamental questions within the education system. [4] The base of the pyramid is for remembering, going up to the top of the pyramid which is for creative thinking. In the flip the class, the pyramid depends on creating more than remembering, enhance students` responsibility for learning and encourage the teamwork concept.
In a traditional lecture, which provided the same power point by the teacher for the whole class on the auditorium we found that it based on remembering more than analytic thinking. In this way of teaching the students may cannot focus and follow most of the knowledge presented in the lecture compared to the flip the class. A study showed that the attention span may last an average of 10 minutes before starting to decline, that way the student could only recall a little bit of information that mentioned in the lectures in comparison to the flip the class. [3]

Similar result was found a quasi-experimental design which done among the nursing student to compare between three learning approaches: traditional lecture only, lecture and lecture capture back-up, and the

flipped classroom approach to lecture capture with innovative classroom activities. The examination scores result was higher for the flipped classroom group (81.89±5.02) than the other groups where lecture and lecture capture back-up group(80.70±4.25) and the lecture only group (79.79±4.51). [5]

Table 1. Relationship between grade rates of flip the classand traditional lectures

	Mean &Std. Deviation	P value
MCQ (flip the class)	13.39±2.68	0.000
MCQ (traditional lectures)	12.38±2.59	
OSCE (flip the class)	33.95±4.26	0.000
OSCE (traditional lectures)	30.37±4.74	
Total (flip the class)	47.34±6.08	0.000

Table 2. Comparing total grade between flip the class and traditional lectures

		Total flip the class	Total traditional lectures	P value
% of student's score	<60%	7 (5.2%)	19 (14.0%)	0.000
	60%-79%	49 (36.0%)	81 (59.5%)	
	80%-100%	80 (58.8%)	36 (26.5%)	

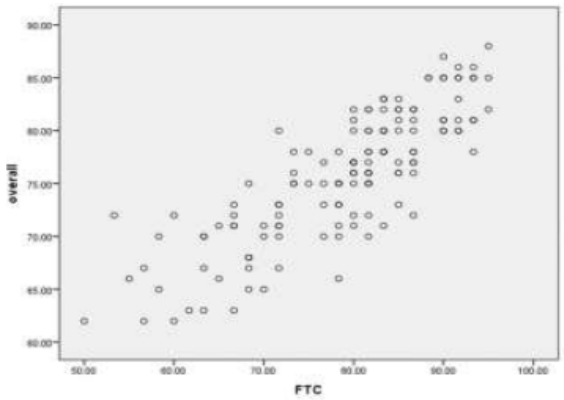


Fig 1. Correlation between overall score and total flip the class score FTC= Flip the class

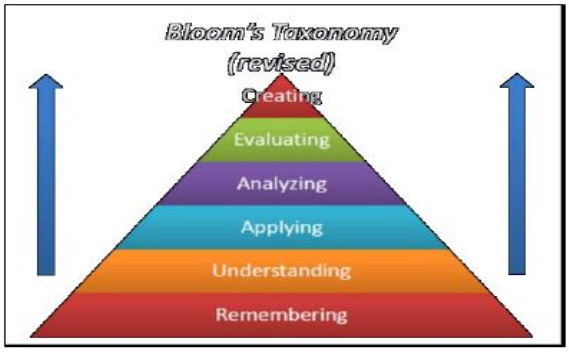


Fig 2. Bloom's Taxonomy (revised)



Fig 3. Bloom's Taxonomy (by Lorin Anderson)

Table 3. Student perspectives on flip the class

Content and structure	missed	Rating of the items		
		Disagree	Neither agree nor disagree	Agree
I know what does flip the class mean	0.92%	6.48 %	11.11%	82.40%
The flip classroom is more engaging than traditional instruction	0.92%	17.58%	21.29%	60.18%
The flip classroom gives me great opportunities to communicate with other students	0%	17.58%	12.03%	70.37%
I regularly watch the video presentation	1.85%	30.54%	14.81%	52.78%
I regularly listen to the recorded presentation	1.85%	32.39%	20.37%	45.36%
I would rather watch a traditional teacher lecture than video presentation or listen to recorded presentation	0.92%	38.87%	27.78%	32.4%
I feel that flip the classroom learning has improved my understanding of the obstetric and gynecological topics the traditional lecture	0%	20.36%	28.70%	50.92%
The flip classroom gives me less time to apply what I did understand clinically	0.92%	31.47%	35.18%	32.4%
I think we should apply flip the classroom on all OBGYN topics	4.62%	58.32%	12.96%	24.06%
I think to flip the class better to apply it on other subjects	5.55%	26.84%	25.92%	41.65%

CONCLUSION

flip the classroom a new teaching modality recommending to applying in medical teaching field. It enhances the learning out came of students as it enhances performance of students in their exam.

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