

Nursing Students' Perceptions Towards Flipped Classroom Educational Strategy.

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Abstract: Background: The Flipped Classroom (FC) is an instructional strategy that can provide educators with a way of minimizing the amount of direct-instruction in their teaching practice while maximizing one-to-one interaction. Aim of the study: to investigate nursing students' perceptions, satisfaction and experience towards Flipped Classroom educational strategy. **Material & methods:** An exploratory descriptive research design was followed to carry out the study. The study was conducted at faculty of nursing Damanhour University Egypt. Total sample was 146 nursing students who registered at community health nursing course during the first semester of the last academic year (2015-2016). Two tools were used for data collection. The first tool: Students' Basic Data Structured Questionnaire and second tool Students' Perceptions to Flipped Classroom Structured Questionnaire. Data were analyzed using percentages, Pearson Chi-square, and Monte Carlo exact probability. **Results:** The study reveals that more than half of students showed a moderate level of satisfaction and positive perception regarding using FC in clinical activities. It also shows that short video lectures can be of significant value for nursing students. More than half preferred the traditional method of teaching while, more than one third of them preferred FC. Significant differences were observed between students' gender, age, residence and their last academic achievement. Students mentioned "facilitate understanding topic, give ideas about class activities, and increase retention of information" as advantages of FC. Students also mentioned that the main challenges of FC were "need extra time to watch, no possibility of immediate feedback during watching videos, and that FC cannot be applied in all nursing courses". **Conclusion:** Flipped Classroom is a promising alternative to traditional lectures in nursing education, that solve the problem of increased number of nursing students and shortage of staff. Besides, it helps students become more engaging in the classroom. It can result in a high level of student satisfaction, self-pacing and independency. **Recommendations:** Introduce Flipped Classroom to other courses and students with different level, improve the quality of videos like sound, embedded quizzes, and activities to create a more engaging experience for the user. Faculty as facilitators of students' learning should, facilitate the learning process by helping students relates didactic content to clinical.

[Doaa Abd El Salam Amin Yacout and Abeer Abd El Fattah Abou Shosha. **Nursing Students' Perceptions Towards Flipped Classroom Educational Strategy.** *J Am Sci* 2016;12(2):62-75]. ISSN 1545-1003 (print); ISSN 2375-7264 (online). <http://www.jofamericanscience.org>. 7. doi:[10.7537/marsjas12021607](https://doi.org/10.7537/marsjas12021607).

Keywords: flipped classroom, inverted classroom, nursing education, community health nursing, video lecture, active learning.

1. Introduction

The rapid rise of technologies presents a tremendous opportunity for educators to design courses that improve student's willingness, desire and compulsion to participate in, and be successful in the learning process when used appropriately. ⁽¹⁾ Technology can enhance student involvement in the learning process, which stimulate learning outcomes, and improve student satisfaction. ⁽²⁾ Students' attention drops quickly, they too often feel disengaged, the lecture pace do not suit all students, and retention of the material presented in typical lectures is low. ⁽¹⁾

In nursing, there has been a call for a radical transformation of nursing education involving educators designing learning experiences that enhance educational quality and ensure that graduates are prepared for today's complex nursing practice at

different health care facilities. One promising alternative teaching strategy is Flipped Classroom. ⁽³⁾ The Flipped Classroom is an instructional strategy which provides a new methodology and modality for teaching and learning, which constitutes a role change for instructors with a way of minimizing the amount of direct-instruction in their teaching practice while maximizing one-to-one interaction and more cooperative and collaborative contribution to the teaching process which can improve and encourage social interaction, teamwork and cultural diversity among students. The roles of students have a corresponding change from passive participants to positive participation. ⁽⁴⁾

In the Flipped-Classroom didactic approach, the traditional lecture is substituted by a strategy that integrates technology and active learning activities to help students' to enhance critical thinking skills.

Students watch video lectures before class and valuable class time is spent on active-learning activities such as individual and small group exercises, application activities, case studies, discussions, and role playing. This inverted approach involves the students actively in course content during class time, and thus students are no longer inactive recipients as typically seen in traditional lectures. Flipped-Classroom therefore, has the potential to address the different learning styles of students.^(4,5)

The concept of the FC is not new; however, the resumption in its relevance has been motivated by the convergence of and recognition by scholars, policy makers, and patient care advocates that improved models of healthcare education must be developed to ensure provider competency. Because evidence suggests that active learning is as effective, or more effective, than the traditional classroom, foundational to the FC is in-class learning activities that emphasize problem solving and cooperative learning. Evidence from nursing literature supports Hake's findings as nursing students reported learning more from having active-learning activities in the classroom rather than lecture-only. Flipped Classroom was defined as focusing academic/student face-to-face contact time on meaningful activities that would develop the students' understanding of a topic.^(4,6)

In terms of Bloom's revised taxonomy (2001)⁽⁷⁾, the students are doing the lower levels of cognitive work (gaining knowledge and comprehension) outside of class, and focusing on the higher forms of cognitive work (application, analysis, synthesis, and/or evaluation) in class, where they have the support of their peers and instructors. This model differs from the traditional model in which "first exposure" occurs through lecture in class, with students assimilating knowledge through homework; thus the term "Flipped Classroom."⁽⁸⁾

Flipped Classroom entails a role change for instructors, with much more instructor-student interaction. The instructor acts as a facilitator and guide, giving personal feedback to individual students, and thus making a more collaborative and cooperative contribution to the teaching process. The method is believed to have the potential to encourage student learning, because students are actively engaged in the learning process, and also the instructor has more time to interact with students individually or in small groups.⁽⁹⁾

Currently research practiced by the educators all around the world on Flipped Classroom educational strategy as **Lage, et al., (2000)**⁽¹⁰⁾ who stated "Inverting the classroom means that events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa". According to **Bergmann, et al., (2012)**⁽¹¹⁾, by

implementing a Flipped Classroom, the lecturer no longer must lecture for two hours while students take notes, they can fully utilize class time for discussion and problem solving with students. Moreover, research has been done by **Long, et al., (2014)**⁽¹²⁾, **Mason et al. (2013)**⁽¹³⁾, on Flipped Classrooms to look at perception, engagement, motivation, active learning and achievement. According to **Bishop, et al., (2013)**⁽¹⁴⁾, Flipped Classroom is the restructuring of the classroom environment and activities at home.

Furthermore, **Franciszkowicz (2008)**⁽¹⁵⁾ argues that visual media is critical in courses where there are multiple steps that go into problem solving. Videos can be used to provide framework for students through problems by modeling expert problem-solving strategies.

The key to the achievement of this strategy is that students take responsibility for their own learning. This could be perceived as both an advantage and challenges. Advantages of this approach include an increase in opportunities for interaction between students and teachers, a shift in the responsibility for learning onto the students, the freedom to prepare for the class at a time that suits them, the opportunity to revise the material and as many times as required, the ability to readily record learning resources, collaborative working between students, an increase in student engagement and a shift from passive listening to active learning. Possible challenges include the need to invest time and resources to develop such courses, possible need for technological investment and time for both teachers and students to acquire and adapt to the new skills required for this more active and self-directed approach to learning.^(16,17)

Significance of the study:

The researchers faced a problem of the increased student numbers in nursing faculties, shortage of staff members during their experience with the faculty of nursing fourth year student in community health nursing department, leading to increasingly large lectures, and therefore decreasing interaction and collaboration, which are important factors for individual learning success and satisfaction consequently, there was a need to find alternative ways to solve this problem. Besides that the researchers wanted to introduce innovative and interactive methods in teaching that make students enjoy learning and be used to address the gap between didactic education and clinical practice performance.

2. Research aim and questions

Aim of the study: to investigate nursing students' perceptions, satisfaction and experience towards Flipped Classroom educational strategy.

Research questions:

1. What are students' perceptions of the Flipped Classroom?

2. How do students perceive the Flipped Classroom supports their learning process?

3. What are the advantages and challenges of Flipped Classroom mentioned by students?

3. Material and Methods:

Materials:

3.1 Research design:

An exploratory descriptive research design was followed to carry out the study.

3.2 Setting

The study was carried out at Faculty of Nursing Damanhour University Egypt. The faculty has nine different scientific nursing departments including community health nursing department. Community health nursing is one of the main courses taught for the students enrolled in the fourth year in each term in the last scholastic year. Each term is consisting of 15 weeks. The clinical training (rotation) is given 12 hours, /week.

3.3 Subjects

It included all undergraduate students in the last scholastic year (fourth year) who were enrolled in community health nursing course of the academic year 2015-2016 during the first term. The total sample of the study was 146 students.

3.4 Tool for data collection:

In order to fulfill the objectives of the study two tools were used to collect necessary data:

3.4.1 Tool I: Students' Basic Data Structured Questionnaire:

It was developed by researchers to identify basic students' personnel and academic data such as: age, gender, place of residence, internet access, last academic achievement and previous experience of Flipped Classroom.

3.4.2 Tool II: Students' Perceptions toward Flipped Classroom Structured Questionnaire.

This is self-reported questionnaire, was developed by researchers to identify basic students' knowledge, preferences and perceptions concerning the Flipped Classroom educational strategy.

It consisted of three parts: **part I a.: students' satisfaction** about the concepts of Flipped Classroom and differences between traditional and flipped method (consist of 5 questions) such as satisfied with learning outcome of FC, satisfied with the effect on their knowledge, preparation for class activities, satisfaction of quality of videos used.

Satisfaction data was gathered using 5 items developed by researchers. The scoring system based on 3 point likert scale with higher score indicating highly satisfied and lowest dissatisfied (1 = low satisfaction, 2= moderate satisfaction, 3= high satisfaction)

The cumulative satisfaction score was ranged from 0 to 15. The scoring system was as follows:

Satisfaction
Low satisfaction score: < 50% = (<8)
Moderate satisfaction score: %50%-<75% =(8-11)
High satisfaction score: ≥75% (11-15)

Part Ib.: Questions regarding students preferences of either Flipped Classroom or traditional strategy.

Part II: Students' Perception with the Value of Flipped Classroom as an educational Strategy. It includes 16 items (statements) such as the Flipped Classroom is more engaging than traditional classroom, Flipped Classroom give me greater opportunity to communicate with other students, I dislike self-directed throughout nursing courses as way of learning. The response to those items were scored on a 5 –points likert scale (1 = strongly disagree, 2= disagree, 3= neutral, 4= agree and 5= strongly agree.) Reversed score were taken into consideration.

Total scoring system as follow:

Perception
Low perception (16-40)
Moderate perception (41-56)
Highly perception (57-80)

Part III: consist of **open ended questions regarding students' opinion** about Flipped Classroom advantages and challenges of application.

3.5 Methods

1- Administrative process:

Approval from the responsible authorities was obtained from nursing faculty and community health nursing department after explanation of the purpose of the study.

2- Study tool:

- The tools were adapted and developed by researchers after an in-depth review of the related recent relevant literature⁽¹⁸⁻²⁰⁾ and was sent to expert in the field of education and community health nursing to check content validity. Necessary modifications were carried out accordingly.

- Cronbach alpha coefficient was used to test the tool II reliability (r=0.819)

3-Preparation for the Flipped Classroom:

A Short video lecture was recorded by researcher for 15 min including basic concepts of ARI:

- Classification and challenges of Acute Respiratory infections in children in Egypt.
- Description of the basic facts, risks factors of ARI.
- Strategy for early detection and treatment (management) of ARI.

It was prepared before the beginning of the scholastic term. Three online videos were used for more illustration about assessment and management of child with ARI (WHO, <https://www.youtube.com/watch?v=hNhLYOeGHRo>):

Title	Duration
How to asses child with cough	12.03 min
Assessment of ARI video	31.02 min
Checking for danger sign	3.57 min

4- The application phase:

The Flipped Classroom were applied on the maternal and child health clinical rotation

➤ Permission was taken from the faculty to use computer lab in the faculty to facilitate watching the videos for the students who has not any access to computer and internet.

➤ The students were classified into 6 groups each group consisted of an average number of 28- 29 students for each. The flipped class room strategy was integrated in the routine clinical work in MCH clinical rotation as the students would deal with mother and children.

➤ Sub-topics were selected to make up a lesson which is one of the main objectives of MCH clinical activities, ARI assessment and management was chosen.

➤ The videos were distributed to students before the initiation of the clinical rotation either by sending through email or social media (Facebook) or CDs of videos were given to them for those who did not have not any access to internet.

➤ The students were asked to view those videos before attending their clinical course.

➤ The objectives of flipped class were discussed with the clinical instructor of MCH clinical rotation to explain the main objectives and how they will be implemented.

➤ The study subjects were approached on a group basis in their classroom and were asked to participate in the study as applying a new strategy for teaching.

➤ The class activities were designed with adequate time for application of knowledge and skills in the class based on the objectives of the topic.

➤ Each group was assembled into 4 subgroups and case studies were distributed to each group and each subgroup tried to solve problems based on what was watched before.

➤ Each group was encouraged to work collaboratively on solving relevant practice problems. These sessions usually take 60–90 minutes.

➤ Each group presented their case study, their result and appropriate management.

➤ After the clinical course, students were asked to fill the questionnaire about extent of satisfaction

with method of teaching as using videos that were part of flipped – classroom teaching approach and their experiences and perceptions of the Flipped Classroom strategy.

5- Pilot study:

Pilot study was conducted on 20 (10 %) of students and they were excluded from the total number of students to insure the clarity and comprehensiveness of the tool.

6-Data collection:

The data were collected over a period of three months during the clinical activity of first term of last semester of October –December 2015-2016. Self-administered questionnaire was distributed to undergraduate students in Damanshour University.

Ethical considerations:

All students were informed about the purpose of the study and given brief explanation; consequently oral informed consent was obtained from each of them.

➤ The right to refuse to participate or withdraw from the study was emphasized after reassuring students that their response would have no impact on their grades.

➤ Data Anonymity and confidentiality were considered.

Statistical Analysis:

1. The collected data were coded and analyzed by using the Statistical Package for Social Sciences (SPSS) software version 20.0.

2. Data was tabulated and presented using various of tests: frequency, calculation of the mean, standard deviation, Pearson chi square, t tests were used in the analysis, chi-square and Mont Carlo exact probability test was used to study the significance of the difference between proportions.

3. The cutoff point for statistical significance was $P \leq 0.05$.

3. Results

Regarding the general characteristics of the studied subjects **Table (1)** shows that less than three quarters (73.3%) of studied students were female compared to 26.7% male, the majority (95.2%) of them were above the age of 20 and more than two third (69.2%) were living in rural area. Moreover, regarding to students' previous academic year achievement, more than half (52. 1%) were very good. The table also reveals that 92.5% of students have internet access, the majority (87.4%) of them accessed it in home and less than two thirds (60.7%) of them accessed it through their personal computer. Moreover, the table shows that the majority (97.3 %) of the students mentioned that they had not any experience in using FC strategy and considered it as a new experience.

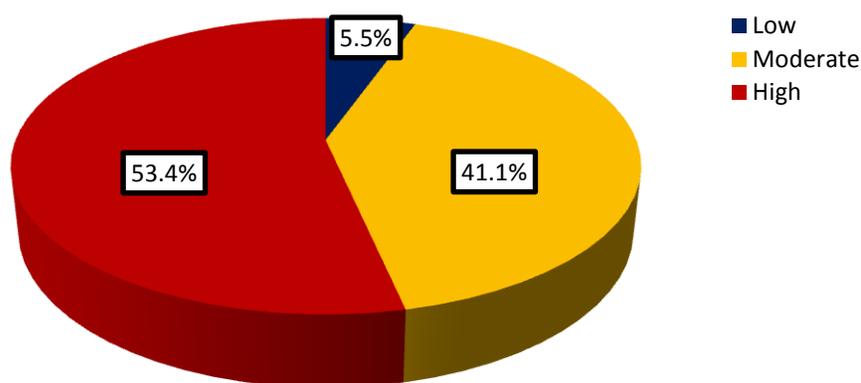


Figure (1): Distribution of the students according to their total Flipped Classroom satisfaction score.

Table (1) general characteristics of studied students.

Demographic data	n= 146	
	No	%
Gender		
▪ Male	39	26.7
▪ Female	107	73.3
Age (years)		
▪ less 20	7	4.8
▪ More than 20	139	95.2
Residence		
▪ Rural	101	69.2
▪ Urban	45	30.8
Last academic achievement		
▪ Fair	1	0.7
▪ Good	45	30.8
▪ V.good	76	52.1
▪ Excellent	24	16.4
Internet access		
▪ No	11	7.5
▪ Yes	135	92.5
Internet place (135)		
▪ Home	118	87.4
▪ Cyber	5	3.7
▪ Friends / relative	12	8.9
Access internet through (n=135)		
▪ Individual computer	32	23.7
▪ Personal devices	82	60.7
▪ Friend computer	2	1.5
▪ More than one device (computer, mobile, tab)	19	14.1
Past experience of Flipped Classroom educational strategy		
▪ Yes	4	2.7
▪ No	142	97.3

Table (2) Distribution of students according to their satisfaction of the Flipped Classroom teaching method.

Statement	Responses	n= 146	
		No	%
Satisfied with learning outcome throughout FC	Highly satisfied	53	36.3
	Moderate satisfaction	58	39.7
	Low satisfaction	35	24
The FC strategy provides good preparation for class activities	Highly satisfied	60	41.1
	Moderate satisfaction	71	48.6
	Low satisfaction	15	10.3
Satisfied by the connection between content in the assigned video and class activities.	Highly satisfied	33	22.6
	Moderate satisfaction	82	56.2
	Low satisfaction	31	21.2
Satisfied with real life case studies and group class activities	Highly satisfied	33	22.6
	Moderate satisfaction	87	59.6
	Low satisfaction	26	17.8
Satisfaction of quality of videos	Highly satisfied	29	19.9
	Moderate satisfaction	113	77.4
	Low satisfaction	4	2.7

Figure (1) shows the distribution of students according to their Flipped Classroom satisfaction total score. It was observed from the figure that more than half (53.4%) of students were moderately satisfied with Flipping classroom and only 5.5 of them had low satisfaction. The satisfactions mean score was 11.8 ± 1.8 .

Table (2) shows the distribution of studied subjects according to their satisfaction regarding FC. It was revealed from the table that more than one third (36.3% and 39.7%) of students stated that they had highly and moderate satisfaction with the acquired learning outcome respectively. Also, 41.1 % of students were highly satisfied that FC prepared them for class activities. Moreover, more than half (56.2%) of them had moderate satisfaction that FC educational strategy connected watched videos with the class activities. Furthermore, more than half (59.6%) of students stated that they had moderated satisfaction of practicing through case study and work group in class activities. Finally, the table reveals that more than three quarters (77.4%) of them has reported that they had moderate satisfaction regarding the quality of videos.

Regarding to the preference of method of teaching (Flipped Classroom, traditional) **figure (2)** Shows that more than half (57.5%) preferred the traditional method of teaching while, more than one third (35.6%) of them preferred FC.

Figure (3) shows the students' total perceptions score towards Flipped Classroom educational strategy that 30.1% of students had a highly positive perception regarding using FC in clinical activities and more than half (55.5%) of them had moderate perception regarding FC.

Table (3) Indicates the relationship between students' general characteristics data regarding to their Flipped classroom perception. More than one third (38.3%) of student who had positive perception to FC were female compared to only 7.7% of male. Also, 31.7%, 35.6 % and 45.8% of those who were more than 20 years lived in urban and had an excellent last academic achievement respectively. Significant differences were observed between students' gender, age, residence and their last academic achievement ($p= 0.002, 0.050, 0.020$ and 0.007 respectively).

Table (4) Demonstrates relation between students' preference of teaching methods and their perceptions regarding to Flipped Classroom strategy. The table shows that 31% of student who had not any past experience of FC had positive perception. Moreover, more than one third (36.5%) of those students who preferred FC as educational strategy had positive perception regarding the method. Statistically significant difference were found among students who had not any past experience with FC, preference of FC and students positive perceptions ($p= 0.001$ and 0.015 respectively).

Figure (4) Illustrates the FC advantages reported by students. The table revealed that less than half (47.3%) and 34.9% of students reported that FC facilitated understanding the topic and gave them ideas about class activities. Furthermore, less than quarter of the studied subjects (22.6% and 21.2%) mentioned that FC helped in retention of information and that videos were more illustrative and related to topic discussed respectively. While, 10.3% of them stated that FC promote group collaboration and interactions.

Figure (5) Revealed that 17.8% of the studied students reported that FC educational strategy need

extra time to watch, and 4.8% mentioned that there is no possibility of immediate feedback during watching videos. Also, 4.1% of them stated that the video was

not clear and minority of students (1.4 %) of the students stated that FC cannot be applied in all nursing courses.

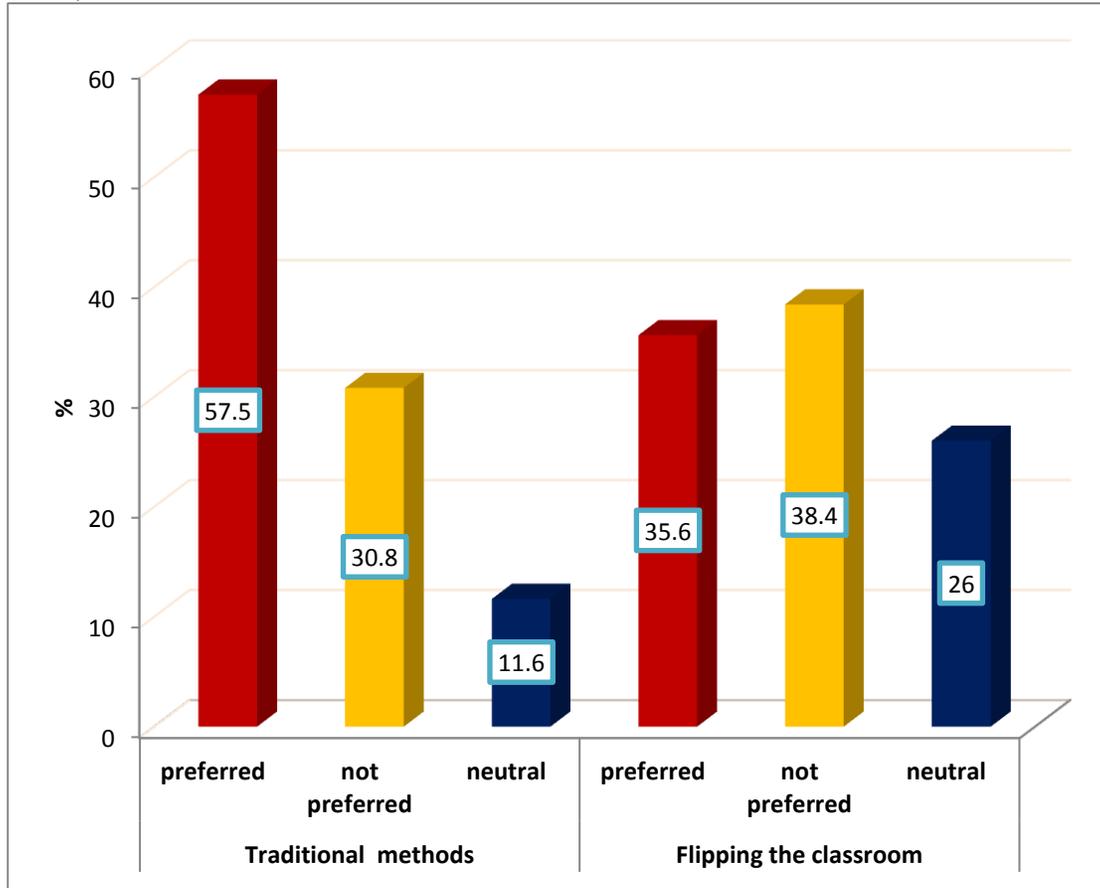


Figure (2) Distribution of the studied students regarding to their preferable method of teaching.

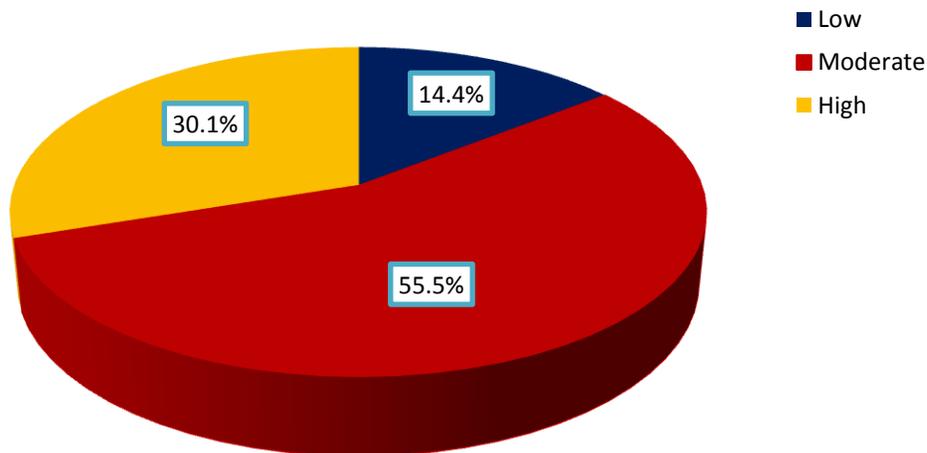


Figure (3) Students total scores' regarding their perception to Flipped Classroom educational strategy.

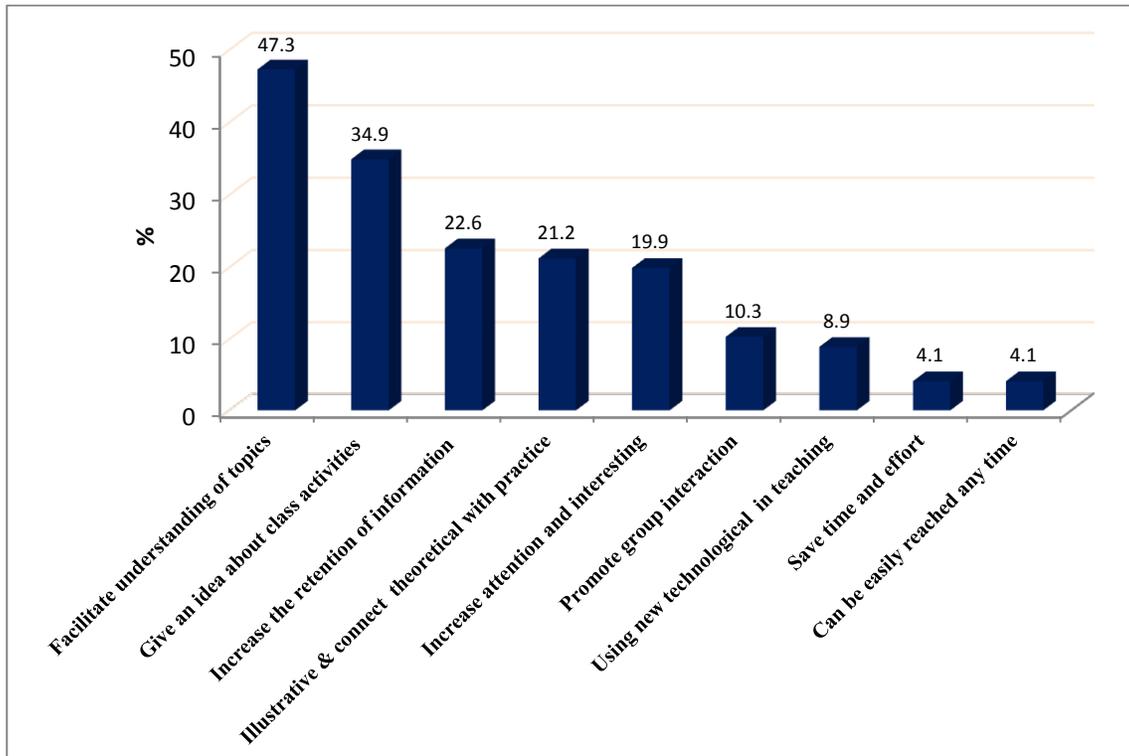


Figure (4) Distribution of studied students according to their reported FC advantages. (Multiple response)

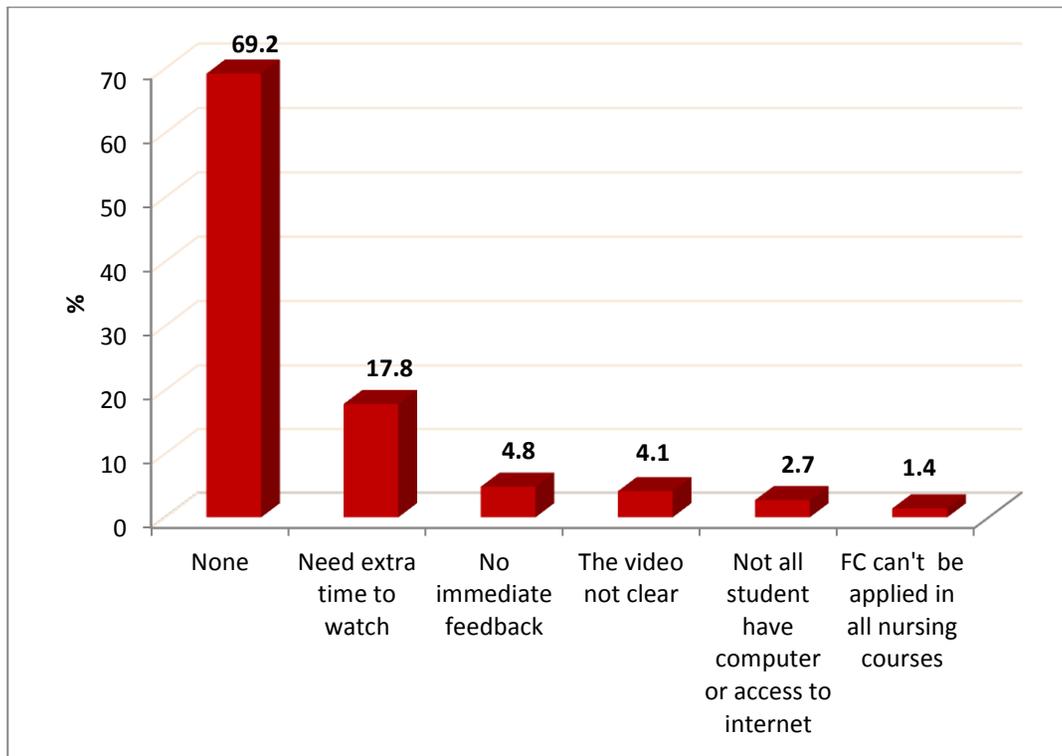


Figure (5) Distribution of studied students according to their reported FC challenges.

Table (3) Relation between students' general characteristics and their FC perceptions. (n=146)

General characteristics	Perceptions						MCP
	Low		Moderate		Highly		
	No	%	No	%	No	%	
Gender							0.002*
▪ Male	8	20.5	28	71.8	3	7.7	
▪ Female	13	12.2	53	49.5	41	38.3	
Age (years)							0.050*
▪ less 20	0	0.0	7	100.0	0	0.0	
▪ More than 20	21	15.1	74	53.2	44	31.7	
Residence							0.020*
▪ Rural	20	19.8	53	52.5	28	27.7	
▪ Urban	1	2.2	28	62.2	16	35.6	
Last academic achievement							0.007*
▪ Fair	0	0.0	1	100.0	0	0.0	
▪ Good	1	2.2	31	68.9	13	28.9	
▪ V.good	19	25.0	37	48.7	20	26.3	
▪ Excellent	1	4.2	12	50.0	11	45.8	
Internet access							0.926
▪ No	2	18.2	6	54.5	3	27.3	
▪ Yes	19	14	75	55.6	41	30.4	
Internet place(135)							0.155
▪ Home	19	16.1	63	53.4	36	30.5	
▪ Cyber	0	0.0	5	100.0	0	0.0	
▪ Friends / relative	0	0.0	7	58.3	5	41.7	
Access internet through							0.229
▪ Individual computer	6	18.7	18	56.3	8	25.0	
▪ Personal devices	10	12.2	49	59.8	23	28.0	
▪ Friend computer	0	0.0	2	100.0	0	0.0	
▪ More than one device (computer, mobile, tab)	3	15.8	6	31.6	10	52.6	

MCP: Mont Carlo exact probability; * P < 0.05 (significant)

Table (4) Relation between students' preference of teaching methods and their perception regarding to flipping the classroom. (n=146)

Preferred teaching strategy	Perceptions						MCP
	Low		Moderate		Highly		
	No	%	No	%	No	%	
Is Flipped Classroom new experience							0.001*
▪ No	4	100.0	0	0.0	0	0.0	
▪ Yes	17	12.0	81	57.0	44	31.0	
Prefer traditional methods							0.085
▪ Preferred	16	19.1	38	45.2	30	35.7	
▪ Not preferred	4	8.9	31	68.9	10	22.2	
▪ Neutral	1	5.9	12	70.6	4	23.5	
Prefer flipping the classroom							0.015*
▪ Preferred	9	17.3	24	46.2	19	36.5	
▪ Not preferred	2	3.6	37	66	17	30.4	
▪ Neutral	10	26.3	20	52.6	8	21.1	

MCP: Mont Carlo exact probability * P < 0.05 (significant)

5. Discussion

Technology can liberate the teacher to move towards student-centered learning environment where each student receives a personalized education

program. A common problem in teacher professional development is a lack of time to learn how to alter or modify teaching practice. ⁽²⁰⁾ It takes significant time to incorporate educational strategies like assessment

for learning, problem-based learning, differentiation, and other strategies into an environment where the majority of the time is spent on lecturing. The Flipped Classroom can make educational improvement possible since it frees up teacher instructional time. ⁽¹⁷⁾

This study aimed to investigate nursing students' perceptions, satisfaction and experiences towards Flipped Classroom educational strategy. The study shows that nearly less than three quarters of studied students were female, the majority of them were above 20 years, while more than two third of them were living in urban area. Moreover more than half of them had very good grades in the last academic achievements.

The results revealed that more than half of studied students had moderate perception regarding Flipping Classroom and more than one third from those who being female, had FC highly positive perception. Furthermore, less than one third from those whose age was more than 20 years and more than one third of students are living in urban area had positive perception to FC respectively. While, less than half from those who had excellent last academic achievements, had highly perception towards FC. Also the results indicate significant differences between students' general characteristics age, gender, residence and last academic achievements and there positive perceptions regarding Flipping Classroom strategy. In the line of this result **Kurtz, et al.,(2014)** ⁽²¹⁾ who find that the majority of his studied subjects who were female and older students had positive perception toward FC and **Butt (2014)** ⁽²²⁾ indicated that a Flipped Classroom approach could be perceived as a positive approach to the University classroom due to its combination of activity and demonstration. While, **Davey (2015)** ⁽²³⁾ contradicted these results and reported that there were no significant relations between his subjects' general characteristics and FC strategy. This may be attributed to that the female societal perception in Damanhour as a rural community prefers to be at home studying as compared to males so they have the opportunities to learn more by different methods. Moreover, those who were aged more than 20 years, had excellent academic achievement and students living in urban area were more concerned to be updated and has intrinsic motivation to understand better in order to achieve more grades and acquire new skills and information.

Furthermore, findings from the present study indicated that the majority of studied students stated that FC is a new experience for them. Moreover, around the majority from those who had not any experience with FC, had moderate and highly perceptions regarding FC educational strategy. Surprisingly, in spite of that more than half of the studied students had moderate perception regarding

FC there were more than half of them who preferred being taught by the traditional method. While more than one third of them preferred FC. Also, more than one third of those who preferred traditional method had high perception regarding FC strategy. A significance difference was found between students' FC preferences and their perceptions. This is in consistence with **Jaster (2013)** ⁽²⁴⁾ who found that a majority of students prefer a traditional lecture approach to a Flipped Classroom in a first-year algebra course. Moreover, **Whillier (2015)** ⁽²⁵⁾ agreed with this result, who mentioned that some students also said they preferred face-to-face lectures to keep them engaged instead of flipping the class strategy, However, in contradiction **Mikkelsen (2015)** ⁽⁹⁾ & **Bishop, et al.,(2013)** ⁽¹⁴⁾ findings indicated that only a small minority preferred traditional teaching over Flipped Classroom teaching and student opinion of the Flipped Classroom tended to be positive, with a significant minority being opposed.

This contradiction may attributed that to, those who preferred the traditional method were not accustomed to be on charge on their learning and as a result would have viewed the Flipped Classroom model to be less desirable than the lecture and resisted this diversion. Or this may be due to that students resisted adopting the new model because old, passive learning habits required less effort in studying and also resistance to change is other reason for not being preferring this method.

Satisfaction of students increased by watching videos prior to class activities which not only gives opportunities for concept understanding along with easy access and control over their pace of learning but also in-class experience had positive influence on their grasp of course material. ⁽⁹⁾

In addition, the present study, the students expressed a moderate level of satisfaction with the four videos assigned, which they generally watched a week before MCH clinical activity rotation. The videos helped them acquire knowledge and prepare for in-class, active-learning activities. Accordingly, this was clear from present result that more than half of students were moderately satisfied with Flipped Classroom strategies (mean score of 11.8 ± 1.8). This was inconsistent with **Moraros, et al. (2015)**, **Farah (2014)** & **Engin (2014)** ⁽²⁶⁻²⁸⁾ who found that overall higher level of course satisfaction benefit were amongst students who had experienced the Flipped Classroom pedagogical model Students.

Moreover, more than one third of studied students had moderate satisfaction regarding their learning outcome form FC educational strategy. Consistently, studies by **Stone (2012)** ⁽²⁹⁾ and **McLaughlin, et al. (2014)** ⁽³⁾ found that the majority of students agreed that the Flipped approach assisted

their learning more than the traditional lecture approach. The following is what students expressed in relation to satisfaction regarding learning outcome.

“It is an interesting way of teaching, makes me more active and interested and it was easy to be remember what was seen, heard and discussed”.

Additionally, nearly less than half of the studied subjects had moderate satisfaction respectively related to importance of FC in preparation of class activities.

“We knew what we had to do, this allowed us to be comfortable learn together while interacting with each other in the groups and all of us were communicating with each other and staff member in relation to ARI case study”

Also the present study showed that more than half of studied sample were moderately satisfied regarding the relevant connection between content in the assigned videos in relation to class activities and real life case studies used in class clinical activities. Additionally, more than three quarters were moderately satisfied with the quality of video used in preclinical activities.

These are what students mentioned in favor of flipping the classroom strategy.

“The information we got from watching videos before session help me to relate between ARI assessment and what had been discussed in relation to Integrated Managements Childhood Illness (IMCI) program and Maternal and Child Health lecture and also connected what we must do in reality”

“I can understand more not just information but also the skills of how we can assess Child with ARI and more details about all parts of assessment and it gives me motivation to practice with children because I can use it more and more time”

“The clinical sessions was full of activities and were concentrated on every single point in discussion.”

“The point that we watched videos before clinical session helps me to understand more and make me alert because all of us were discussing with each other to solve the situation which will be presented”

In line with the present results **Mikkelsen (2015)**⁽⁹⁾ mentioned that more than quarters of his studied students believed that the videos were better than face-to-face lectures with regard to learning outcome. While in contradiction, **Misseldine et al., (2013)**⁽⁵⁾ showed that nursing students who had participated in a Flipped-Classroom course were less satisfied than students who had experienced two other teaching formats. Moreover, **Strayer (2012)**⁽³⁰⁾ finds that students in a Flipped Classroom were less satisfied with classroom structure than those in a traditional class. Also, in contradiction **Whillier (2015)**⁽²⁵⁾ found that no significant differences between his studied

subjects and their overall satisfaction with Flipped Classroom strategy and **Chen, et al. (2015)**⁽³¹⁾ Also, found that while there was appeal for the Flipped Classroom for many reasons, many students had trouble adapting to it. This may be attributed that blending new teaching technologies with interactive classroom activities as Flipped Classroom can result in improved learning but not necessarily improved student satisfaction. Furthermore, this may be due to that students are reluctant to do the extra work required to prepare before class if they do not see the benefit of doing it or have a lot of homework to be prepared.

Regarding the advantages of Flipped Classroom, the current study demonstrates that less than half and more than one third of the studied subjects mentioned that FC facilitate their understanding of ARI and give them previous ideas about class activities respectively. Also, less than one quarter stated that FC increases the retention of information and videos were more illustrative and connected to what had been taught. In the line with these results **Shi-Chun 2014**⁽²⁰⁾ mentioned that many advantages of the Flipped Classroom for students were mentioned by most of the students who were learning at their own pace, improve student abilities to understand and solve case studies problems while discussing it with their peer group, engage concepts with peers, students work in the classroom in groups and this form of cooperative learning is thought to reinforce their understanding of the course material, particularly this is a benefit to those students whose personality types and preferred learning styles working impair their performance in traditional educational environment.

Furthermore, **Jerri, et al. (2015)**⁽³²⁾ mentioned that students reported that they enjoyed being able to view the lectures in video format, repetition parts of the videos that were unclear on the first watching, flexibility and the ability to re-listen to the lectures. Also they stated that FC helped students become an independent learner and reinforcement of ideas was a main benefit. Moreover, **Veeramani, et al.(2015)**⁽³³⁾ mentioned that FC enabled a better understanding of the subject, a greater interest, incentive to actively engage with the subject before the class, as benefits to FC.

Moreover, **Kecksemety (2014)**⁽³⁴⁾ had reported the advantages of the Flipped Classroom strategy which include making the students responsible for their learning and helping them develop lifelong learning skills as well as providing them with individualized instruction to remedy weaknesses or misconceptions. Other studies added that peer interaction was found to be positively related to growth in leadership abilities, academic skills and other aspects of college satisfaction, with the

exception of satisfaction with facilities **McCallum, et al. (2015) and Aronson, et al. (2013).**^(35, 36)

On the other hand, in the current study students mentioned some challenges to FC which the most explanation that was stated by less than a quarter of studied students that watching video need extra time. This was stated as follow through open ended question:

“That instead of just reading what should be learned and coming to hear from our instructor we watched videos also we do what should be done from clinical written activities so it is wasting of time “

“It is not suitable for us especially during exam no extra time, we are overwhelmed”

Moreover, minimal percent of students mentioned that no immediate feedback and the videos were not clear and that FC cannot be applied in all nursing courses”.

“The voice in the video some time was not good as should be”

“Some information was not clear and want to ask about it while watching the video in absence of teacher and can be forget to ask about it later”

“Some of our colleagues don’t have either computer or internet access and computer of faculty was not good so much and not available all the time to be accessed “

This was some of the students’ statements regarding drawbacks (challenges) of FC strategy

In the line with this result, **Aronson et al. (2013)**⁽³⁶⁾ and **Herreid et al. (2013)**⁽³⁷⁾ found that half of the students desired to be able to ask questions while watching the videos were the main challenge in FC strategy. Others felt that video are impersonal, and viewing video outside the class required additional time were mentioned by their studied students. While, **Syam (2014)**⁽³⁸⁾ found that level of good quality of used videos was one of the disadvantages stated by his studied subjects.

From the perspective of the researchers and based on the results of this study, FC is a promising methodology to teach and motivate students as it increases their commitment and satisfaction in the learning process, but time is needed to change students’ perceptions and assertiveness regarding active learning approaches.

6. Conclusion:

Results of this study showed there was a significant difference between students' preferences and their perceptions, and students showed a moderate level of satisfaction and positive perception regarding using FC in clinical activities. FC has many advantages and challenges, despite these challenges, the Flipped Classroom proved to be a novel and effective teaching approach at the undergraduate

nursing students. So, Flipped Classroom is a promising alternative to traditional lectures in nursing education, that solve the problem of increased number of nursing students and shortage of staff. Besides, it helps nursing students become more engaging in the classroom activities and offering timely feedback. It can result in a high level of student satisfaction, self-pacing and independency. Furthermore, students should regularly receive feedback regarding different teaching methods especially in clinical practice.

7. Recommendations:

➤ Based on the findings of this study, academic institutions should:

- Introduce Flipped Classroom to other courses and with students with different class levels.

- Improve the quality of videos like sound, embedded quizzes, and activities to create a more engaging experience for the user.

- Facilitate students’ learning process by helping them to relate didactic content to clinical activities by using innovative educational strategy.

➤ All stakeholders (e.g., faculty, students, administrators) must collaborate and work together to anticipate the potential advantages and challenges of introducing a novel teaching methodology to ensure optimal learning.

➤ An active computer center should be available for students to help in using interactive educational strategy.

➤ Further research: other novel educational strategy should be initiated in research.

Acknowledgments:

For cooperation and participation in this study, the authors are indebted to all nursing community health students, enrolled at the fourth year at the Faculty of Nursing - University of Damamhour, who agreed to participate in this study.

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2/9/2016