

Effects of Flipped Classroom Videos in the Return Demonstration Performance of Nursing Students

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Abstract

Flipped classroom as an innovative learning strategy has recently earned popularity in nursing education; however, there is a paucity of data about its effect in the return demonstration performance of nursing students. There was 80 4th year nursing students randomly divided into two groups, flipped classroom group (n=40) and traditional classroom method group (n=40) scheduled for blind return demonstration and graded based on a standardized scale. Videos about CPR, bandaging, splinting, and IV insertion was uploaded to the Facebook page flipped classroom by the researcher. On-line viewing of the video has been made accessible and available to flipped classroom group. FGD and a face-to-face interview have been employed. Findings revealed a slight difference of scores in return demonstration of both groups. Students reported that their experienced in flipped classroom method boosts their confidence, increase interest and satisfaction towards the course. Experts highly recommended blending of the method with other teaching methods to potentially achieve better outcomes.

Key words: Flipped classroom, Videos, Return demonstration, Nursing students.

Introduction

In recent years, the relationship between flipped classroom and student's performance has received a great deal of scholarly attention [1-2]. Studies show that flipped classroom engagement among students' is associated with better test scores, promoted learning motivation and understanding of the course, increased class attendance, enhanced communication skills [1,3], and improved learning outcomes [4,5]. Given that engagement of students' in flipped classroom shown to benefit learning process in so many ways, it is not at all surprising to find that flipped classroom videos may also predict improvement of their psychomotor skills.

Methods

This study is an experimental research conducted at the College of Health Sciences, Mindanao State University, Marawi City during the first semester of academic year 2017-18. Subjects of the study were eighty (80) fourth year nursing students enrolled in Nursing Care Management [NCM] 106.5 (Care of Clients with Problems in Cellular Aberrations, Acute Biologic Crisis, Including Emergency and Disaster Nursing – Related Learning Experience [RLE]) which is a 2-units skills laboratory component out of a total 5 units RLE. The researcher obtained approval permission from the dean of the college and individual consent form signed by students.

Students were randomly and equally divided into two groups, the experimental group (n=40) and control group (n=40) who were all

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unaware of their groupings. The former was instructed to watch a video online uploaded in the Facebook Page of MSU-CHS flipped classroom. Video uploaded are cardiopulmonary resuscitation (CPR), bandaging, splinting, and intravenous (IV) insertion which are introduced to the experimental group week prior to their scheduled return demonstration handled by one (1) faculty member trained in the use or application of flipped classroom.

The attendance of experimental group in watching the uploaded videos in the flipped classroom has assured through writing their insights in the comment section of the videos appending their names after watching. Both groups are handled by batch given a specific scheduled. Table 1 below illustrates the groups four session of return demonstration in which every session is composed of four (4) days - first day for lecture and demonstration by a faculty (e.g. CPR), second day is uploaded video exclusive for experimental group only, third day is flipped classroom video designed for the same group, and fourth is the students return demonstration for both groups. Then, third to fourth session has been done the same.

The lecture and demonstration of a faculty has been delivered by one person to ensure that learning is homogenous to all students. The students in the experiment group were notified on the specific time and date of uploading the video. The uploading of videos has been done by session - first session is CPR, followed by bandaging on the second session, then splinting, and intravenous (IV) insertion, respectively. Students who did not participate in the flipped classroom video session have been excluded in the actual number of participants. Both groups utilized skills checklist book that has been provided to each student prior to the start of semester. The book is comprised of sixteen (16) procedures in which the researcher only extracted the procedures not yet performed by students.

In the scheduled day of return demonstration, participants in the experimental and control group students alternately done the return demonstration. Each student is rated based on rubrics scaling as follows: 5 (Excellent) - executes the step with mastery, accuracy, confidence, consistency, and completes the step with correct rationale; 4 (Very Good) - Able to perform the step precisely and with accurate rationale but exceed the time limit; 3 (Good) - Able to perform the step in its proper sequence with complete rationale but displays limited skill in the execution on and/or lacks confidence and consistency; 2 (Satisfactory) - Able to execute the step with incomplete, incorrect or inadequate rationale; 1 (Unsatisfactory) - Able to perform the step with full assistance by the instructor or performs the step incorrectly or wrong sequence; and, 0 (Not Performed) -

No written rationale and/or the step was not performed or omitted.

The CPR procedure checklist is composed of 15-items or steps in which the highest possible score using the rubrics is 75 points. Then, Bandaging is composed of 28-items, splinting is 11-items, and IV insertion is 31-items with a possible highest point of 140, 55, and 155 respectively. Each student performance on a particular return demonstration was calculated and cumulatively computed for each group to illustrate difference. Statistical tools applied were percentage distribution, and weighted mean.

The notion that flipped classroom improved learning outcomes is generally consistent with growing body of research in the academic and clinical milieu. Several studies revealed that flipped class is popularly being acknowledged in higher education [6-9] and in the delivery of healthcare services [3,8,10]. Based on systematic review of literature gathered, there are numerous researches about contributions of flipped class in cognitive performance of students, but little attention is given to psychomotor domain.

Result

There was a total of 80 nursing students enrolled in NCM 106.5 as participants of the study in which equally distributed to two groups, the experimental group (n=40) and the control group (n=40). The gender proportion for female is greater than male; however, the proportion of gender and ages for the two groups were comparable (Table 2). All students have complete attendance (100%) during the series of lecture and demonstration of procedures by a faculty as well as to their actual scheduled return demonstration. In the review of flipped classroom engagement with the actual video uploaded, all students in the experimental group watched the video and affixed their attendance in the Facebook page.

Table 3 compares the return demonstration performance of nursing students from both groups. All of the students in the experimental group who had watched video of return demonstration in the flipped classroom have higher return demonstration performance than the group without intervention. In an FGD conducted to students who had made engagement in the flipped classroom expressed that they have watched the video at least 3 to 4 times and they used the video in practicing procedures in the checklist procedure book and even tried to mimic the actions in the actual video. They also expressed that it is good to have a video available because it serves as their virtual teacher where they can review the procedures anytime and anywhere as long as they have their gadgets and reliable internet connection.

Return demonstration performance of the students' showed higher percentage and mean scores with procedure skills on bandaging as the highest followed by splinting,

Table 1: Sessions of return demonstration.

Group	1 st Session			3 rd to 4 th Session	
	Day 1	Day 2	Day 3	Day 4	Day 5...Day 16
Experimental (EG)	Lecture & Demonstration of a faculty	Uploaded Video	Flipped classroom video	Students Return Demonstration	Students Return Demonstration
Control (CG)		none	None	Students Return Demonstration	Students Return Demonstration

Table 2: Demographic information of nursing students as participants of the study.

SI No.	EG	CG
Number of students	40	40
Gender		
Male	6 (15%)	4 (10%)
Female	34 (85%)	36 (90%)
Age (years old)	21.5 ± 5	22.7 ± 5
*EG=Experimental Group, CG=Control Group		

Table 3: Return demonstration performance of nursing students

Number of Procedures	% of scores		Mean scores	
	EG	CG	EG	CG
Cardio Pulmonary Resuscitation (CPR)	94.25	92	4.52	4.30
Bandaging	95.5	93.5	4.41	4.32
Splinting	95	94	4.38	4.35
Intravenous (IV) insertion	88.4	85.5	4.24	4.12

CPR, and IV insertion. Students in the flipped classroom group were asked how many times they have watched the video expressed that due to limited time provided have watched it for three to five times started when the video has been uploaded or made available in the FB page flipped classroom of the MSU CHS. Students have limited time viewing in the FB page flipped class due to interval between the date of the upload or availability of video in the FB page and the scheduled return demonstration. The short interval was intended to ensure that the allotted time for students is intended for review and preparation or practice for particular skills procedure. It also minimized or avoided employing bias between the two groups as it ensures that the students under flipped classroom group may have possibly over prepared.

An interview was conducted among students in the flipped classroom verbalized that they have struggled in accessing the video to watch and download due to some challenges in the use of Facebook such as the link to the page cannot be found, unreliable internet connection, and technical problems in their gadgets (e.g. smartphones and tablets) which are outdated. This may be viewed as burdensome on the part of the students [11] because of the mechanics in the learning that perceived as addition work or task to do. On the other hand, students in the flipped classroom expressed that they become more confident in performing skills procedure because they could review the video multiple times and have a virtual instructor that can be readily accessible and available anytime. This accord to the findings of studies [12,13] in a comparison between flipped classroom and traditional method showed that the former promotes motivation, satisfaction, and interest towards the course.

Discussion

Researches supporting the effectiveness of flipped classroom in clinical nursing skills development have little evidence available. Most of the studies have shown more effect on the cognitive domain [11,12,14-16] but very little on psychomotor [1,17]. Though some authors claimed no difference in the performance, based on quizzes and exams of the students in traditional method [5,10,18]. It suggests that more research work must be done concerning clinical skills competency to ensure that the nursing graduates who

will be deployed in different clinical milieu can provide a competent, safe, and quality health care services.

This research is centered on the effects of flipped classroom method in the skills improvement of nursing students lensed through their performance in the return demonstration of selected procedures. Notably, findings of the study consensus with Schwankl [18] that flipped classroom have little significant difference when compared to traditional method that needs to be validated with more research. An interpretation of the findings in the difference between the two methods could be influenced by sharing of resources such as the downloaded videos from FB page and sharing of link to the website to students in the traditional group as expressed by respondents during focused group discussion. According to Jensen [19] as cited by Pantawala et al. [2] illustrated that sharing of classroom resources for learning is an evidenced of active learning which could promote good learning outcome.

Interestingly, though findings showed no extreme difference in the increase of skills performance of the students in flipped classroom group, however, its impact to their interest, satisfaction and motivation in learning could make a difference. Studies [1-2] suggested that students with intense motivation and learning interest tends to perform better. A factor that may need to consider in the learning interest of the students in the flipped classroom is the availability and accessibility of resources. Internet connection may not be available in some areas and students have different model of gadgets owned which some might be already outdated.

Moreover, flipped classroom could be much more appreciated when combined with other teaching strategy. It is because, undeniably, almost every student has gadget or at least smartphone in which integration of flipped classroom could be always possible. It would also make the teacher and student always connected and promotes the value of student centered learning. This posed greater challenge to the teacher on how to cope up with the technological advances and competence of the students. With this, trainings, seminars, and other enhancement programs related to the use of technologies are relevant.

Conclusion

Flipped classroom videos intervention for nursing students' performance on return demonstration has low effect. However, the impact of flipped classroom to millennial nursing students could make a difference in their attitude towards learning and in promoting a quality and safe clinical nursing skills practice. Experts highly suggested blending of other teaching method which are subject of future studies needed to address.

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