

## **A MOOC concept based flipped calssroom teaching for Surgical nursing Teaching**

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**Abstract** – Aim: To examine the impact of MOOC-based flipped classroom instruction in surgical nursing curricula. Methods: It was determined by the random number table approach that 99 students in class 1 and class 2 were the experimental group and 99 students in the control group for the nursing undergraduates of grade 2017 at our school of nursing. Based on the MOOC idea, the experimental group used a flipped classroom teaching method in their classrooms. A comparison was made between the two groups in terms of their assessment scores, evaluations, self-evaluation, and teaching satisfaction. Results: The experimental group scored considerably better on theoretical knowledge and competence operation than the control group (P0.05). Students in the experimental group were more satisfied with the teaching techniques they were given, their excitement for learning, their ability to integrate material, and their overall learning experience than those in the control group (P 0.05). There was a statistically significant difference between the experimental and control groups in terms of self-management, case analysis, team interaction, and information literacy (P0.05). In the experimental group, 96.97 percent of participants were satisfied, whereas in the control group, 85.86 percent were satisfied (P0.05). Learning outcomes for surgical nursing students are improved by the use of a MOOC-based flipped classroom approach that emphasises self-management and critical thinking skills development, both of which may be enhanced through the use of the flipped classroom model.

**Keywords-** MOOC concept; flipped classroom; surgical nursing; teaching.

### **I. Introduction**

Surgical nursing serves as the foundation for studying and mastering other nursing specialties [1]. In the classroom today, conventional methods of instruction still reign supreme. With the rapid advancement of Internet technology, conventional teaching methods are no longer the sole or best method of teaching. Instead, there are a wide range of educational opportunities accessible. Anybody may sign up for free online education via massive open online courses

[2]. Student-centered teaching and active learning methods are the hallmarks of a flipped classroom. The effectiveness of flipped classrooms based on massive open online courses has been shown in previous research to be in the teaching of fundamental computer courses [4]. However, no research has been done on its use in surgical nursing education. A primary goal of this research was to examine how the utilisation of massive open online courses (MOOCs) may be utilised to educate surgical nursing.

## **II. Material And Method**

### *A Background information*

It was determined that 99 students from Class 1 and Class 2 would be assigned to the experimental group, while 99 students from Class 3 and 4 were assigned to the control group, according to our school's random number system for 2017. Between the ages of 18 and 22, there was an experimental group with an average age of (20.221.01) years. Seven males and forty girls from Class 1 were included in the experiment; four males and forty males from Class 2 were included in the experiment with 47 pupils from Class 1. The average age of the control group was (20.851.05) years old. Six males and forty-two females from Class 3 were in the control group, whereas five males and forty-two females from Class 4 were in the experimental group. For the most part, the two groups were statistically indistinguishable.

### *B Teaching method*

- For the control group, instructors designed lessons based on the framework of surgical nursing as well as the student's progress in the course of study. A quick overview of the last session was followed by a thorough illustration of the new employees to be taught. Student involvement in the classroom was minimal at this period, allowing them to learn passively. Teachers provided students preview activities and then summarised the lesson for the rest of the class.
- Based on MOOCs, the experimental group implemented a flipped classroom [5]. A PPT including essential points from the lesson, as well as recordings of the processes and explanations, was developed by instructors in advance of class. The videotaping lasted between six and nine minutes. Students were then invited to download the materials from the college intranet, WeChat platform, or a class group on WeChat and study on their own. As needed, students might seek help from their professors or classmates. Eight- or nine-person teams comprised the students, each led by a team captain. For the lesson, teachers created a teaching table that corresponded to the class's objectives. To ensure that students were prepared for the lesson, the team leader would distribute the table two weeks before to the class and assign responsibilities to the group members. Teachers began the course by outlining the issues and obstacles students faced in the preview session, followed by student presentations. Teachers then posed questions to pupils, who were then expected to think about and respond to them. Teachers then had to sum up and remark on their presentation, focusing on the issues and obstacles that children face on a daily basis. Finally, instructors delivered the prepared teaching material, aided students in role-

playing, and provided feedback to the students. QQ group received evaluations and assessments from teachers after class so that students could better understand their performance for revision and self-introspection. In the meanwhile, students may take advantage of the opportunity to study and grow.

c *Indicators for observation*

Student evaluations may be made in two ways: theoretically (through multiple-choice questions and matching exercises) and practically (via brief responses and case studies), with a maximum of 100 points awarded for each course. After class, instructors handed questionnaires to students on their preferences for this sort of teaching technique, their readiness to intern, the integration and use of nursing skills, generating interest in learning, information acquisition, general efficiency, and so on. (4) The Cronbach's an efficiency of the questionnaire was set at 0.968 [6] for each item. When students finished class, instructors handed out and collected the self-evaluation forms. Students' abilities to manage themselves, analyse cases, work in groups, and gather information were mostly tested via the use of a questionnaire. A total of 50 points were awarded to each item. [7] A higher score indicates a greater level of self-esteem. To measure teacher contentment, we employed a standardised questionnaire with a total score of 100 and three degrees of satisfaction: extremely content, usually content, and discontent. 100 percent overall satisfaction = 100 percent (total cases minus unsatisfied cases)

D *Statistical Analysis*

t-test and 2 were used to compare assessment scores and teachers' self-assessments in SPSS23.0, while teaching satisfaction was measured using ( percent ). There was a 0.05 margin of error.

**III. Result**

A Table 1 shows that, on both theoretical and practical knowledge and skill measures, the experimental group performed considerably better than the control group (P0.05).

**Table I.** Comparison Of Assessment Scores Of The Two Groups ( X ±S)

Item	Experimental Group n=99	Control Group n=99	t	P
Theoretical Knowledge	86.65±4.22	80.24±4.10	10.840	<0.001
Practical Skills	91.20±4.14	82.65±4.05	14.689	<0.001

B In Table 2, the experimental group's teaching efficiency was shown to be considerably superior than that of the control group (P 0.05).

C. Comparison of the two groups' self-evaluations: Self-management, case analysis, collaboration, and information acquisition were considerably greater in the experimental group than in the control group (P 0.05), as shown in Table 3.

- D As demonstrated in Table 4, there was a significant difference in satisfaction between the experimental and control groups (96.97 percent vs. 85.86 percent, P0.05).

**Table II.** Comparison Of Teaching Efficiency Between Two Groups Of Students [Cases (%)]

Item	Experimental Group n=99	Control Group n=99	$\chi^2$	P
Preference of Teaching Approach	92 ^92.93%	80 ^80.81%	6.376	0.012
Interest Stimulation	88 ^88.89%	76 ^76.77%	5.113	0.024
Integration of theories with Practice	98 ^98.99%	78 ^78.79%	20.455	<0.001
Improved Awareness of Participation	83 ^83.84%	68 ^68.69%	6.277	0.012
Stimulating Interests in Learning	93 ^93.94%	70 ^70.70%	18.360	<0.001
Improvement of Information Acquisition	85 ^85.86%	65 ^65.66%	11.000	0.001
Overall Effect	90 ^90.91%	79 ^79.80%	4.888	0.027

**Table III.** Comparison Of Self-Evaluation Between Two Groups Of Students ( $\bar{X} \pm S$ )

Group	Experimental Group	Control Group	t	P
Case No.	99	99		
Self-management	39.94±4.52	34.52±4.28	8.663	<0.001
Case Analysis	43.25±5.20	35.11±4.41	11.789	<0.001
Teamwork	41.25±4.23	35.36±4.22	9.808	<0.001
Information Acquisition	42.21±4.14	34.54±4.24	12.878	<0.001

**Table IV.** Comparison Of Teaching Satisfaction Between Two Groups Of Students [Cases (%)]

Group	Experimental Group	Control Group	$\chi^2$	P
Case No.	99	99		
Very Satisfied	80 ^80.81%	46 ^46.46%		
Generally Satisfied	16 ^16.16%	20 ^20.20%		
Dissatisfied	3 ^3.03%	14 ^14.14%		
Overall Satisfaction %	96 ^96.97%	85 ^85.86%	7.786	0.005

#### IV. Discussion

At all educational levels, surgical nursing is a required course and an essential clinical course that aims to teach nursing students both conceptually and practically so that they may become proficient surgical nurses. As a result, pupils are unable to think for themselves and their learning ability and excitement suffers as a result of the conventional teaching method. As science and technology continue to advance, internet and mobile media have also had a huge impact on medical education at the college and university level. This new sort of online education platform, known as a MOOC, incorporates all aspects of the educational process, such as tracking student progress, peer-to-peer tutoring, and the ability to revise students' assignments. Additionally, it is becoming increasingly popular with the general public because to its ease of use and cost-free availability online [8]. Students learn through doing rather than listening to professors speak in the flipped classroom paradigm, which is the polar opposite of conventional schooling. Students prepare for class by watching videos and going through PowerPoint presentations, as well as doing other forms of independent study. Pupils' issues and challenges are shared in class to help students understand the material better. In schools throughout the world, this teaching technique is becoming more popular since it encourages pupils to be more flexible and active.

Flipped classroom teaching was the primary method used in this research to teach surgical nursing. Results showed that students in the MOOC-based flipped classroom performed better academically than students in the control group ( $P < 0.05$ ), indicating that the MOOC-based flipped classroom effectively mobilises students' learning initiative and enthusiasm, thus enhancing students' academic performance. Liu Jinfeng et al's findings [9] are largely corroborated by this finding. Researchers found that the experimental group's teaching effect was statistically more significant than that of the control group's ( $P < 0.05$ ), which may be due to flipped classrooms encouraging students watch videos and read materials before class, as well as students' abilities of cooperation/communication, autonomous learning, and problem solving through discussion and analysis of material in the classroom. Liu Haibo et al [10] found similar findings in the teaching of Surgical Nursing that used flipped classrooms for both theoretical and practical instruction. Students in the experimental group outperformed those in the control group on measures of self-management, case analysis, teamwork, and information acquisition ( $P < 0.05$ ), indicating that MOOC flipped classroom pre-class preparation can effectively boost students' enthusiasm and self-learning efficiency, while case discussion and analysis in class can effectively I The findings of the research by Li Yan et al [11] who used BOPPPS in surgical nursing skills training are almost identical. Study participants in the experimental group were substantially more satisfied with teaching than those in the control group ( $P < 0.05$ ), which suggests that MOOCs may be used to successfully increase students' contentment with teaching in the flipped classroom environment. Teaching model instructors are better able to communicate with students, therefore enhancing the interaction between teachers and students and boosting student happiness. The findings of Zhang Dandan et al [12] are almost identical to those of our research, which used a MOOC-based flipped classroom in ICU nursing.

Surgical nursing students benefit from the MOOC-based flipped classroom because it increases their interest in learning, improves their self-management and case analysis skills,

and boosts their academic performance and satisfaction with the teaching process. As a result, it is deserving of promotion in educational institutions.

## **V. Conclusion**

The MOOC-based flipped classroom has proven to be highly effective in the teaching of surgical nursing because it stimulates students' interest in learning, improves students' ability to self-manage and analyze cases, and increases students' academic performance and satisfaction with the teaching process. As a result, it is worthy of being promoted in educational institutions.

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