The Research of Medical Science Review

Received: 15 October, 2024
Accepted: 15 November, 2024
Published: 23 November, 2024

ISSN: 3007-1208 | 3007-1216
Volume 2, Issue 3, 2024

ASSESSING THE EFFECTIVENESS OF FLIPPED CLASSROOM APPROACH ON LEARNING OUTCOMES AMONG UNDERGRADUATE NURSING STUDENTS: A QUASI-EXPERIMENTAL STUDY

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ABSTRACT

The class format can be described as learner-centered or upside-down classrooms where the teacher's role is decreased in terms of pure information presenting and increased in terms of providing possibilities for using knowledge. Significantly, the flipped classroom approach draws emphasis on both online teaching as well as face to face teaching, This study aimed to assess the Effectiveness of Flipped Classroom Approach on Learning Outcomes among Undergraduate Nursing Students. This was a quasi-experimental study carried out in Khyber Pakhtunkhwa. Data were collected from a total of 50 nursing students of fourth semester. Four months flipped interventions were applied in health assessment class where the knowledge and practices of the students was based. Data were collected using an adopted questionnaire, Most of the participants in this study were male and belonging to urban areas. The findings of the study reported significant mean score difference between pre and post health assessment knowledge (P=0.000) and practices (P=0.004) of nursing students. By employing flipped learning approach, this study revealed that there were enhanced nursing students' health assessment skills as well as the knowledge. Flipped classroom approach is one of the effective teaching learning strategies in nursing education.

Keywords: *Flipped Classroom Approach, Health Assessment, knowledge, Skills, Undergraduate Nursing Students*

INTRODUCTION

Nursing education is critical to preparing future nurses who can deliver high-quality patient care in complex and dynamic healthcare environments (1). Traditionally, nursing education has followed a lecture-based approach, wherein students receive theoretical instruction during class and apply it later through independent study or clinical practice (2). However, concerns have emerged regarding the effectiveness of this method in promoting deep learning, critical thinking, and practical application, which are essential for clinical competence in nursing (3). In response to these challenges, educators have increasingly explored alternative teaching strategies, one of which is the flipped classroom model.

Flipped classroom is an instructional model, in which the delivery of content through lecture takes place outside class commonly through video-taped sessions and the class is used for purposes of meaningful learning (4). Specifically, this concept of learning opposes the model in which initial acquaintance with the teaching material is presented in class, and subsequent knowledge application is conducted outside the class (5). The reviews substantiate that the flipped environment facilitates engaging learning, enhanced

performance, and synthesis of analytical, and problem solving talents (6).

While examining the flipping of classrooms in nursing education, the research has garnered much interest and has supported the concept in most of the outcomes determined. Existing literature has shown that students who take flipped classrooms are likely to record improved academic performance, better critical thinking skills, higher learner engagement, and higher course satisfaction than students in traditional lecture-based courses (7). For instance, another study showed that the students who were offered nursing in the flipped classroom environment got better test results than those using traditional classroom approaches (8). Same to this, literature affirmed that, the technique common in flipped classroom enhances mastery of contents and problem solving skills which are core competencies for nurses (9).

The flipped classroom concept is among the relatively new trends in education with the overall aim of enhancing efficiency of learning, instruction has applied the concept of flipped learning (10). Based on the fact that through differentiated instructions the teacher could develop different teaching strategies for every student, researchers concluded that this kind of teaching was efficient (11). Moreover, in the flipped learning participants prepare the learning materials in their homes and come to class already with a solid understanding of the topic, and probed by the teacher, they expend considerable time discussing the topic (12). However, several enriched teaching methods have been attempted to address these issues, including problem-based learning with flipped learning and action learning with simulation education (13).

The flipped classroom engaging technique to allow the students to engage in more active learning was achieved by having them preview the teacher-recommended video by reading what the teacher wanted them to see (14). In relation to more conventional forms of conventional learning, the experimental group of BSN nursing students expressed a high level of course satisfaction with flipped learning (15). The goal of flipped classroom model is primarily to use the classroom to teach the material that was learnt ahead of time. Engaging students in an active learning approach rather than the traditional business of getting the lecture delivered turns the system around for the better to enhance the achievement of the learners (16).

This quasi-experimental research seeks to compare the impact of the flipped classroom method on the learning achievements of the undergraduate nursing students. The study aims at evaluating whether the adoption of the flipped classroom model has a positive effect on students' academic performance, and skills. Eventually, the study will extend the existing knowledge base on effective approaches to the delivery of nursing education and help to identify how nursing students can be equipped to better meet the challenges of the contemporary nursing environment.

Methods and Materials:

This was a quasi-experimental study carried out in a private nursing college in district Mardan Khyber Pakhtunkhwa. BSs nursing students enrolled in fourth semester were employed in the study. The students who have knowledge about internet usage and computer were included on the study.

A total of 50 students were employed in the study using purposive sampling technique. Data collection permission was granted from the college administration. The aims and objectives of the study were clearly explained to the participants and they were assured that the study will not gave you any harm. Flipped education approach was used where the teacher keep them intact through online and face to face learning in health assessment subject.

Data were collected using an adopted questionnaire (17). The used questionnaire was a validated (CVI=0.89) and reliable (Cronbach's Alpha = 0.787). The study was carried out in three phases. In pre-interventions the initial level of understanding of the students were assessed. Interventions were applied in the second phase and in the last phase the effectiveness of interventions were assessed. Data were analyzed using SPSS version 24.

Results:

Socio-demographic profile:

Overall, 50 participants were employed in the study. Nearly half (48%) of the participants were from the age group of 20 to 25 years, 38% of the participants were from the age group of more than 25 years and only 14% of the participants were

reported less than 20 years of age. The majority (76%) of the participants was male. 62% of the participants were from urban and 38% of the participants were from rural areas. 90% of the participants were reported no web based education (Table 1).

Table 1: Socio-demographic profile of the participants, n=50

	f	%
Age of the Students		
Less than 20 Years	7	14.0
20 to 25 Years	24	48.0
More than 25 Years	19	38.0
Total	50	100.0
Gender of the Students		
Male	38	76.0
Female	12	26.0
Total	50	100.0
Residence of the Students		
Urban	31	62.0
Rural	19	38.0
Total	50	100.0
Web based education of the participants		
Yes	5	10.0
No	45	90.0
Total	50	100.0

Effectiveness of Interventions:
Initially, the health assessment score was assessed and four months interventions were applied. After the interventions, the effectiveness of the interventions was assessed using paired-t-test. The Pre-interventional mean score of the Heath assessment practice was 181.20 which enhanced to 225.90 after interventions. There was significant (P=0.000) mean difference among health assessment practices score before and after interventions (Table 2).

Table 2: Mean difference among pre and post- intervention Health Assessment Practices score, n=50

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Interventional Assessment	181.20	50	8.192	1.158
	Post-Interventional Assessment	225.90	50	2.922	.413

Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% CI of the Difference Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pre and post Interventional Assessment	-44.70	9.031	1.277	-47.26	-42.13	-34.99	49	.000

Similarly, the effectiveness of the interventions in term of health assessment knowledge was assessed using paired-t-test. The Pre-interventional mean score of the Heath assessment knowledge was 11.68 which enhanced to 14.32 after interventions. There was significant (P=0.004) mean difference among health assessment knowledge score before and after interventions (Table 3).

Table 3: Mean difference among pre and post- intervention Health Assessment knowledge score, n=50

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Interventional Knowledge	11.68	50	4.533	.641
	Post-Interventional Knowledge	14.32	50	4.018	.568

Paired Samples Test

		Paired Differences							
				Std. Error Mean	95% CI of the Difference				
		Mean	Std. Deviation		Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pre and Post-Interventional Knowledge	-2.64	6.197	.876	-4.401	-.879	-3.01	49	.004

Discussion:

In this study, a total of 50 participants were employed. Nearly half (48%) of the participants were from the age group of 20 to 25 years. The majority (76%) of the participants was male. 62% of the participants were from urban and 38% of the participants were from rural areas. 90% of the participants were reported no web based education. This aspect is relevant in the assessment because the intervention used brought a new form of learning and other forms that were likely strange to the participants. The findings of the study were also marked by high masculinity, where 76% of the participants were males only (18).

This distribution might be inclined to the fact that in some certain territories or programs, there are many more male students studying Nursing or Healthcare education (19). It would be useful in further research to try to understand how this specific model of the flipped classroom model is perceived by male and female students.

Existing geographical location and origin could also be seen among the participants with 62 % being from urban areas while 38 % from the rural areas (20). This is crucial as the backdrop of urban students might result in high adaptability to technology as well as higher technological ability, which automatically influences their performance in Web-based learning element of the flipped classroom (21).

The current study reported that there was significant (P=0.000) mean difference among health assessment practices score before and after interventions and significant (P=0.004) mean difference among health assessment knowledge score before and after interventions. These findings were consisting with the findings of another study which proved the effectiveness of flipped education model in enhancing the academic performance of the nursing students (22). Similarly, another study also supported the findings of the current study and reported that flipped classroom approach positively affect the skills and performance of the students (23).

A study carried out in Lahore Pakistan, also emphasized on the effectiveness of flipped classroom approach on nursing students level of understanding and practices. The study reported significant (P=0003) means score difference among pre and post interventions understanding and practices of nursing students in health assessment subject (17). The findings of the current study is also consistent with the previous study carried out by Zainuddin in which the flapped interventions significant improved the academic performance of the nursing students as compared to the traditional method (24).

Furthermore, our results do support other researchers' observations which indicated an increase, with statistical significance, in the level of practical skills among members of the flipped classrooms. They also realized that the flipped group had been informing the students in a way that the group works on the students intellectual and practical skill and assists in the effective flow of information (25,26). Almost all existing studies ensure the effectiveness of flipped classroom approach and it was recommended to utilize this approach in the future.

Conclusion:

This study therefore reveals that nursing students who adopted a flipped instructional model had a positive change in knowledge, practices, and skills in the health assessment. Furthermore, flipped interventions increase students' confidence and motivation, and they prepare them for clinical classes better than traditional learning approaches. Flipped learning can therefore be viewed as approach to delivering teaching content to nursing students with an intention of enhancing students', knowledge and skill competence.

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