Effect of Applying some Active Learning Strategies on Cognitive Achievement and Attitudes towards Professional Midwifery Course for Students of Faculty of Nursing, Mansoura University.

Om Hashim Mahmoud Mahmoud Saadoon

Lecturer of Woman's Health & Midwifery Nursing, Faculty of Nursing-Mansoura University, Egypt.

Abstract: This study aimed to evaluate the effect of applying some active learning strategies on cognitive achievement and attitudes towards professional midwifery course for students of Faculty of Nursing, Mansoura University. *Design:* A quasi experimental Pre & Post design. *Sample type:* A random sampling was used. *Setting:* The study was conducted at faculty of nursing in Mansoura University from 22/11/2016until 20/12/2016 during the first semester of academic year 2016-2017. **The study subjects** included (150) students divided into two groups the intervention group included (75) students who were taught using the active learning strategies and the control group included (75) students taught by the traditional learning method. *Tools: Tool (I):* It was included the cognitive achievement test, contained (30) questions regarding normal labour. *Tool (II):* Structured attitude scale. *Results:* Results of the present study showed that there were highly statistically significance differences regarding posttest of the cognitive achievement test for both the intervention and control groups of the study. Also, there were highly statistically significance differences regarding posttest of the attitude scale for both the intervention and control groups of the study (p value =0.001). *Conclusion:* The study results concluded that applying some of active learning strategy significantly improved students' cognitive achievement and their attitudes towards professional midwifery course. *Recommendations:* There is a demand for evaluating methods of active learning from the teacher's point of view.

Keywords: Active learning strategy, Cognitive achievement, Normal labour & Nursing attitudes.

INTRODUCTION

Around the world, approximately 140 million births occur every year(*World Health Organization, 2018).*Most of these are normal births among normally pregnant women without complications for themselves or their babies during labour (*Danilack et al., 2015)*.The core of obstetric practice is normal labour, it is defined as spontaneous expulsion of a single, mature, healthy fetus presented by vertex within a suitable time between 37 and 42 weeks of pregnancy and after birth, mother and infant exhibit good status (*WHO, 2011).*

Development of different types of health problems and nursing care methods have been aggressively encouraging nurses to think creatively and innovation in nursing to improve nursing care *(Wengetal, 2013)*.Creative thinking has been described as the ability to design simple, and different nursing interventions in order to apply easily and conveniently nursing care *(Ku, 2015).*

The most commonly used way for conveying knowledge and practices for students is the traditional learning method *(Weltman, and Whiteside, 2010).*In this type of teaching, students negatively receive information from the professor and understand it through some form of memorization, many teachers dispute that students require transferring more knowledge *(Wang, 2012)*.While active learning strategies are defined as activities that students do to construct knowledge and understanding mean while controlling the content they are learning using writing,

discussion, questioning, and reflection(*Carr et al., 2015 & DeYoung, 2009).*

Active learning strategies focus on the direct involvement of the student with the learning material and can include short writes, brainstorming, quick surveys, think-pair-share formative quizzes, debate, role playing, cooperative learning and group-based learning *(Malik, & Janjua, 2011).*

Benefits of using active learning strategies in the classroom are many as helping to increase social contact among students and change a variety of learning styles, especially visual, auditory, and kinesthetic learners(*Phillips, 2005).* Active learning strategies improve learning experience and increase remembering and retrieval of knowledge for long-term learning *(Yazedjian& Kolkhorst, 2007).*

KWL strategy (Know - Want to Know - Learned) is a teaching method that helps students improves strategical ways to learn updated material with the use of questioning and obtaining information from credible sources. This strategy can be effective in enhancing independence in learning (*Riantika et al., 2014)*.

From previous studies *Abdullah et al.,(2017)*showed that active learning strategy is more effective than passive learning especially in nursing education. In addition to *Kinchin et al.,(2009)* pointed out that student-centered instruction is related to the quality of learning, and the arousal of favourable student attitudes

Nursing faculties require to move away from the usual teacher-centered educational approaches and use an active student-centered learning style. It is extremely important to create learning experiences that help reflection, knowledge building, problem-solving, questions, critical thinking and to improve students' cognitive achievement and attitudes *(Rosciano, 2015).*

SIGNIFICANCE OF THE STUDY

Today, innovative techniques in nursing education are enhanced to promote the learning demands of continuously changing health care *(Chan, 2012).* In order to maintain quality of nursing education, improve cognitive achievement and attitudes of nursing students, teachers are demanded to up to date methods in their teaching plans using innovative methods of teaching *(Pourghaznein et al., 2015).*

The most widely adopted pedagogical approach used for transferring knowledge in majority of the construction programs today is the usual teaching methods that contain lectures, seminars courses, and lessons to expose the students to different parts of construction *(Bhattacharjee, 2014).* Also traditional methods, other forms of active learning strategies in construction education include construction site visit, site trainings, computer games and simulations *(Vizeshfar et. al., 2016).*

In faculty of nursing, Mansoura University there was in sufficient application of the active learning strategies in professional midwifery course. Nursing students should be aware of all theoretical knowledge and practical skills related to the chapter of normal labour to provide competent and effective nursing care as definition, stages, physiology, clinical features & nursing management of each stage. So this study was conducted to evaluate the effect of applying some active learning strategies on students' cognitive achievement and their attitudes towards professional midwifery course.

AIM OF THE STUDY

Aim of the present study was to identify the effect of applying some active learning strategies on cognitive achievement and attitudes towards professional midwifery course for students of Faculty of Nursing, Mansoura University through:
1. Evaluate the effect of some active learning strategies on cognitive achievement of the students towards professional midwifery course.
2. Evaluate the effect of some active learning strategies on attitudes of the students towards professional midwifery course

RESEARCH HYPOTHESIS

1. There are statistically significant differences at the level of significance (0.05) between means of the posttests for the intervention and control groups in the cognitive achievement in favor of the intervention group.
2. There are statistically significant differences at the level of significance (0.05) between means of the posttests for the intervention and control groups in the structured attitude scale in favor of the intervention group.

OPERATIONAL DEFINITIONS

Active learning: Is defined as a type of learning styles in which the student passively involves or interacts with the learning process.

Cooperative learning: Is defined as working of small groups of the students together to achieve their own and each other's learning.

"K-W-L (Ogle, 1986): In this strategy students begin by brainstorming everything they know about a topic, k means what I know, w means what I want to know and l means what I learned.

Brain storming: Is a process for generating creative ideas and solutions through intensive and moving around freely and irresponsibly group discussion.

MATERIALS& METHOD

Study Design: A quasi-experimental design was adopted to conduct the current study.

Study Setting: The study was carried out at Faculty of Nursing, Mansoura University.

Type of Sample: Random sampling.

Subjects: Students registered at 3rd level credit hours, learned professional Midwifery course (150 students both men and females) during the first semester of the academic year 2016-2017. Divided randomly into two groups, intervention and control groups each contained (75) students. The intervention group was learned by using active learning strategy, while the control group was learned using traditional learning method.

Inclusion criteria:
Students who were registered professional midwifery course at 3rd level credit hours.

Tools of Data collection:
Tool I: Cognitive achievement test: The researcher formulated the test from the chapter of normal labour. It included (30) questions divided into (7) multiple questions, (13) matching questions and (10) true and false questions. All sentences of the test were depending on the first three cognitive levels as (recall/ knowledge- comprehension and application) and the total score of the test equal 30.

Scoring system of the test:
Score 1 for the correct answer, score zero for the unanswered question or incorrect and the total score of the test equal 30.
Tool II: Structured attitude scale: After reviewing the previous studies and related literature, the researcher used the attitude scale to assess the students' attitudes towards professional midwifery course. The scale contained (28) items included positive and negative attitudes of the students regarding the professional midwifery course.

Scoring system of the structured attitude scale:
The Likert scale was used to measure the score of the scale as from(5-1) for the positive sentences there were included in the scale and from (1-5) for the negative sentences. After

the researcher obtained the opinion of the expertise in the field of the nursing maternity regarding the content of the attitude scale, the researcher deleted (10) sentences from the attitude scale in order to be (28) items divided into (19) positive sentences and (9) negative sentences and the total score of the scale was (140) the following tables clarify this:

Table (1): Way of correcting the structured attitude scale

Sentences	Strongly agree	Agree	I don't know	Not agree	Not at all agree
Positive sentences	5	4	3	2	1
Negative sentences	1	2	3	4	5

Table (2): Criteria of the structured attitude scale toward professional midwifery course.

Items of the scale	Number of positive sentences	Number of negative sentences	total	%
Nature of professional Midwifery Course	1,2,4,5,8,10	3,6,7,9,11	11	39.29
Importance of professional Midwifery Course	12,13,14,16. 17,19,21	15,18,20	10	35.71
Curiosity	22,23,24,25,26,28	27	7	25
Total score	19	9	28	100

The content validity of the Tool:

These tools were reviewed by five panels of experts in maternal nursing field to test the content validity. According to expert suggestions and comments modifications were considered.

Reliability:

The reliability analysis was used to verify the relevance of the study tools elements to each other. Cronbach's alpha was used, it has been shown that Cronbach's alpha is (0.78)for the first tool and (0.65) for the second tool.

Pretest for the study tools (cognitive achievement & structured attitude scale).

The researcher ascertained from the equality of both the intervention and control groups of the study through:
1. pretest for both the intervention and control group of the study for the cognitive achievement.
2. Pretest for both the intervention and control group of the study for the structured attitude scale.

The following table shows this equality for both the intervention and control group of the study in cognitive achievement and attitude scale.

Table (3): Pretest of the Cognitive achievement and attitude scale.

Tests	Measuring Unit	Control group Mean ±SD	Intervention group Mean±SD	T test	P-value
cognitive achievement	score	9.61±4.46	9.89±4.44	0.39	0.70
Attitude scale.	score	60.29±5.59	59.60±5.04	0.80	0.43

Significant at p ≤0.05

Table (3) Shows that there was no significant difference among the control and intervention groups regarding the cognitive achievement and attitude scale, this means that both control and intervention groups of the study were equal in cognitive achievement and attitude scale p= 0.70 & 0.43 respectively.

Ethical Considerations:

The researcher was already nominated to teach the professional midwifery course for nursing students, who were registered at 3rd level credit hours during the first semester of the academic year 2016-2017, Faculty of Nursing at Mansoura University.

Field work

Preparing phase:

a- Preparing the cognitive achievement test:

1- Aim of the test:

This test aimed to help the third level students at faculty of nursing – Mansoura University to acquire knowledge, skills and attitudes regarding professional midwifery course.

2- Designing sentences of the test:

The researcher designed the test from 30 questions, considering scientific accuracy in designing content of the questions.

3- Designing criteria table:

The criteria of the cognitive test were determined according to the three cognitive levels as (recall/ knowledge-comprehension and application) and the researcher formulated sentences of the test according to these levels, as shown in the following table

Table (4): Cognitive levels of the test

Recall			Comprehension			Application			Total questions	%
Question numbers	Number of questions	Relative weight	Question numbers	Number of questions	Relative weight	Question numbers	Number of questions	Relative weight		
1,2,3,8,9,10,1 1,12,13,14,21 ,22,23,24	14	46.67%	15,16,17, 18,19,20, 27	7	23.33%	4,5,6,7,2 5,26,28,2 9,30	9	30%	30	100 %

4- Instructions of the test:

After identifying number of sentences, the researcher clarified the instructions of the test in order to help students to answer the test as the following: students' data as name, group, instructions regarding the test as number of sentences and alternatives, instructions regarding the answer and putting the correct alternative in the correct position & preparing the model answer to guide the researcher.

5-Scoring system of the test:

Score (1) for the correct answer, score (zero) for the unanswered question or incorrect and the total score of the test equal (30).

6- First Figure of the Test:

According to the previous steps, the researcher formulating the achievement test in it's initial form, it included 30

6-calculate time of the test:

The time of the test was calculated according to the following formula:

$$\text{Time of the test} = \frac{\text{Time of the first student} + \text{Time of the last student}}{2} = \frac{20+40}{2} = 30 \text{ minutes}$$

II-Implementation phase:

The researcher applied tools of the study (pre and post) on the studied sample control and intervention groups. But the k-w-l, brain storming and cooperative learning were applied for the intervention group only.

For the control group:

Before starting the first lecture, the researcher assessed the students' knowledge and attitudes of the control group (75 students) regarding the chapter of normal labour as (pretest cognitive achievement test and structured attitude scale). After that the control group was learned by the traditional learning method, as the chapter of normal labour was divided into four lectures, each one lasted about 3hours.

For the intervention group:

Students of the intervention group were learned by using some of the active learning strategies as (k-w-l strategy- brain storming strategy and cooperative learning strategy).The researcher divided the students of intervention group (75) students into 15 groups each group contained 5 students and each student was recognized his role in each group. Students' knowledge and attitudes regarding the chapter of normal labour were assessed as (pretest cognitive achievement test and structured attitude scale). Then the researcher gave for each group the activity booklet included (k-w-l) schedule and discussed the meaning of (k-w-l).

The researcher gave question for all students involved in the intervention group in order to attract their attention "brain storming", so each student collected his/ her previous information related to the previous question concerning the chapter of normal labour. The researcher asked each group to open the activity booklet to write their information on the upper part of k-w-l schedule.

The researcher discussed with the speaker of each group around his/ her information. Also explained for the students

sentences divided into 7 multiple questions, 13matching questions and 10 true and false questions. This tool was reviewed by five panels of experts in maternal nursing field to test the content validity. According to expert suggestions and comments modifications were considered.

7- Pilot study for the cognitive achievement test:

A pilot study was conducted with (30) students both men and females in order to examine the applicability and to test the clarity of the tools as well as to estimate the time needed to answer it. Also to clarify or relations of ease, difficulty and discrimination of the study sentences, calculate internal validity of the cognitive test, and calculate it's reliability. According to statistical analysis of pilot study modification was considered, this modification included deleted open ended questions. These students were excluded from the study sample.

group of pictures, videos and power point related to the chapter of normal labor. In addition to give other questions and asked students to write answers in the first part of the (k-w-l) schedule.

Discussion was carried out among the researcher and the students about what they had written related to normal labour. And asked them to answer simple explanations in the activity booklet and write the unknown questions in the second part of the (k-w-l) schedule.

During each theoretical lecture, the researcher asked the students to read the subject of the normal labour from the theoretical book or power point for about 15 minutes in order to write answers for the questions that had been written in the second part of the (k-w-l) schedule and then write answers in the third part of the (k-w-l) schedule.

Finally, the researcher selected one student from each group to discuss answers and ideas that had been reached from this activity.

III -Evaluative phase

After finishing the fourth lecture the researcher assessed knowledge and attitudes of the students of both groups (the intervention & control)regarding chapter of normal labour as(posttest cognitive achievement test and structured attitude scale.

Statistical Analysis:

Statistical analysis was done using Statistical Packages for Social Science (SPSS) version 16.0. Data were presented using descriptive statistics in the form of Numbers, Percent, Means and Standard Deviations for Quantitative variables. Quantitative variables were compared using independent and paired t test. Cronbach's Alpha to test the reliability of the tools. Statistical significance was considered at p-value $\Box 0.05$.

RESULTS

Table (5): Posttest of the Cognitive achievement test for both the Intervention and control groups of the study. N=150

Variables	Group	number	Mean±SD	T test	P-value
Knowledge/ Recall	Control	75	8.73 ±1.92	10.51	0.001[*]
	Intervention	75	11.80 ±1.64		
Comprehension	Control	75	2.91 ±2.03	4.78	0.001[*]
	Intervention	75	4.43 ±1.86		
Application	Control	75	4.71 ±1.39	9.36	0.001[*]
	Intervention	75	6.80 ±1.35		
Total score	Control	75	16.35 ±3.73	11.16	0.001[*]
	Intervention	75	23.03 ±3.60		

[*]Significant at p ≤0.05

Table (5): Shows significance differences regarding posttest of the cognitive achievement test for the intervention and the control groups. There were highly statistically significance differences regarding posttest of the Cognitive achievement test for both the Intervention and control groups of the study control group p value =0.001

Table (6): Posttest of the attitude scale for both the Intervention and control groups of the study. N=150

Variables	group	number	Mean ±SD	T test	P-value
Nature of professional Midwifery Course	control	75	29.55 ±2.96	24.91	0.001[*]
	intervention	75	41.28 ±2.81		
Importance of professional Midwifery Course	control	75	28.15 ±3.77	18.72	0.001[*]
	intervention	75	39.17 ±3.44		
Curiosity	control	75	20.33 ±2.29	26.83	0.001[*]
	intervention	75	29.23 ±1.74		
Total score	control	75	75.03 ±7.29	30.77	0.001[*]
	intervention	75	109.68 ±5.12		

[*]Significant at p ≤0.05

Table (6): Shows Significance differences regarding posttest of the attitude scale for both the Intervention and control groups of the study. There were highly statistically significance differences regarding posttest of the attitude scale for both the Intervention and control groups of the study as (Nature of professional Midwifery Course, Importance of professional Midwifery Course and Curiosity) p value =0.001.

DISCUSSION

The current study aimed to evaluate the effect of applying some active learning strategies on cognitive achievement and attitudes towards professional midwifery course for students of faculty of nursing, Mansoura University. The findings of the study indicated that statistically significant differences (improvement) were found among pretest and posttest of the cognitive achievement and attitudes among the third level nursing students. Thus, these findings support the proposed research hypothesis.

Regarding improvement of cognitive achievement for the study groups, table number (5)in the current study revealed that there were highly statistically significance differences regarding posttest of the related three levels of the cognitive achievement test(knowledge/ recall, comprehension and application) for both the control and intervention groups(p value =0.001).

The researcher interpreted that, active learning participation of the intervention group positively and effectively in the educational activities through an educational environment rich in three different teaching strategies that took into account the abilities and capabilities of the students in the practice of different learning activities and had the opportunity to choose and work by themselves, think and express their experiences so they become interested in doing the duties, assignments, enjoy and proud of achievement of learning.

According to the control group, the researcher interpreted that improvement in cognitive achievement occurred from traditional learning method because of the researcher allowed the students to participate in lectures through discussion and asking questions, this enabled students to participate actively in lectures.

The current study results were in agreement with the study of ***Abdullah, et al.,(2017)*** who studied effectiveness of active learning in nursing education, and reported that active learning strategy is more effective than passive learning especially in nursing education.

Also ***Slavin, (2011)&Dat(2016)***, who studied instruction based on cooperative learning and who studied the effects of Jigsaw learning as an active learning strategy on students' knowledge retention in Vietnamese higher education respectively, both studies found that cooperative learning results in greater long-term achievement than the traditional lecture-based teaching group taught by lecture.

Similarly, ***Soltanzadeh et al.,(2013),*** who studied the effect of active learning on academic achievement motivation in high schools students and showed that significant differences were found between traditional learning group and active learning group in achievement motivation scores, so the active learning method has a significant role in achievement motivation rather than traditional learning method.

In contrast to ***Sand-Jecklin (2007)*** who found that nursing students revealed a predilection for passive instructions, in

order to stimulate, expand their thinking and creativity to better understand the concept. So that the first hypothesis of the current study was achieved through the previous results.

Also results of table (6) revealed that, there were highly statistically significance differences regarding posttest of the attitude scale for both the intervention and control groups of the study as (nature of professional midwifery course, importance of professional midwifery course and curiosity) p value =0.001.

Researcher interpreted that engaging the students in learning environment through active learning, helped the students to participate actively and increased their confidence and improved their attitudes towards learning the course.

This was in agreement with *Farzanehand Nejadansari, (2014),* who studied students' attitude towards using cooperative learning as an active learning strategy for teaching reading comprehension, reported that, working the students in cooperative groups helped them to depend on each other, enhanced their confidence to solve problems and accept learning. In addition to the students acquired positive attitude toward cooperative approaches that improved their language learning and encouraged their interest.

In addition to *Mihrka, (2014)*who studied learning styles and attitudes towards active learning of students at various levels in Ethiopia and found that students' attitudes at grade 10 are positive attitudes towards learning. Similarly, *Abdel Hallim,(2011),* who studied the effectiveness of some active learning strategies in developing the creative writing skills in English and the cooperative attitudes among the preparatory stage, reported that using cooperative learning as an active learning strategy had a great effect on creative writing and cooperative attitudes of the students.

In contrast, *Lake, (2001)*, showed that some student perceptions in respect of active teaching methods were poorer in comparison to traditional lecture methods. Also, **Ross & Bruderle** *(2018)*, who studied effects of active, student-centered teaching strategies on nursing students' knowledge, skills, attitudes, and comfort related to patient safety, showed that findings of his study did not show a change in knowledge, perceptions, or comfort related to patient safety. So that the second hypothesis of the current study was achieved through the previous results.

CONCLUSION

Depending on findings of the present study, we can conclude that applying some active learning strategies significantly improved students' cognitive achievement and their attitudes towards professional midwifery course.

RECOMMENDATIONS

In view of the findings arising from the present study, we recommend that:
- Encourage teachers at different levels of study to deal with
  active learning strategies, because of their positive effects.
- Providing a supportive and encouraging educational environment for teachers to use active learning strategies.
- Further research and studies aimed at investigating the impact of active learning strategies on other variables related to the process of educational learning, such as motivation to learn and attitudes towards learning.

STUDY LIMITATION

- Few Egyptian nursing studies and inadequate references were found regarding applying active learning strategy.

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