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Measures to Achieve Active Learning in Large Classes, Using the Workshop Method in Nursing Education

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Active learning as a new method has better results in comparison with traditional ones. In this method students are allowed to search for information, learn by relying on themselves and teacher's guide.The study of educational training workshop and observing the active learning behaviors throughout the workshop for activating students were the purposes of this study.In this quasi- empirical study, 37 nursing students from Shahid Beheshti University was sampled by census method. Two direct observation and a final exam forms were collecting tools to measure the level of learning throughout three workshops. SPSS version 16 was used to calculate the mean and standard deviation. Students' behavior associated with active learning, in small and large group discussion and after implementation of blended learning model in large class was discussed. The outcomes show that students had a very good attention, participation and trying to find the answer within small group discussions. Using inquiry method is a very effective method to make students participate in large group discussion. After implementation of blended learning model in large class, the level of students' learning was improved. The level of learning in cognitive domain can be improve by these learning's methods.

Key words: Nursing education, Workshop, Observation.

The importance of higher education quality is increasing consistently.lack of motivation, the number of failures and students decreasing numbers, are the problems that teachers face these days[1]. Recent researches in higher education show that, with conventional training methods, the level of interaction between teachers and students is very low. So by use of active learning and modeling methods, teachers must modify the students from traditional role as inactive audience, and teach them how to acquire knowledge and skills and use them[2]. Common classes of academic disciplines aremostly managed by lectures.

With regard to the high number of students in classes and few intended hours to teach in comparison with courses relevant headlines, the common educational method is lecture that is included the best conditions, questions and answers. On one hand this method is completely teacher-centered, and on the other hand the result of such educational system is learning at lower levels of cognitive domain. This means that learners are not able to analysis, synthesis, and evaluate the instructed contents[1]. One of the policies being mentioned in the world, is getting out from the lecture based classes and giving some parts of learning responsibilities to the students[3]. Studies on class's behavior and learning results has shown that active learning led to better outcomes in learners[2]. A vast evidence support this finding that active learners, compared with the same persons who pass lessons in traditional way, are more successful in understanding the concepts[4]. Based on active

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learning methods, team work in small groups is the important part of teaching. Learning by problem-based method, will cause students to consider the thinking strategies. The new knowledge which are formed in their mind, is ordered by the way of thinking, and then analyzed, increased and evaluated[5, 6].

Regarding Oliveira and his colleagues there are five characteristics for an active learning classroom (ALC):

i) Students are involved in courses more than listening to the teacher;
ii) Less emphasis is placed on transmitting information and more on developing students' skills;
iii) Students are involved in higher-order thinking (analysis, synthesis and evaluation);
iv) Students are engaged in activities (e.g., reading, discussing, and writing):
v) Emphasis is placed on students' exploration of their own attitudes and values[1].

Teacher's success in creating a safe and supportive environment will improve clear expectations and positive relationships in class, and this makes some promotion in active learning. Current researches in Oregan State University (2005) and the research by Rahman and Sadat (2007) suggest some characteristics for these kinds of classes which are described in table 1[7, 8].

Discussion as an inquiry is one of the main and very effective methods of active education. The basis of inquiry based learning is constructivism, in which the topics are explained and afterward the knowledge builds step by step. Teacher not only defines anything, but also begins with a question. Involving learners with questions that must be resolved is a very effective method for education in many of the educational environments. In fact, learning to its best form promotes in team work. This method allows students to search for information, learn by relying on themselves and teacher's guide. In an inquiry method, the problem must be studied, and the methods used to answer this question, is selected by student not teacher[9]. Inquiry based learning requires learners to be more active in engagement in scientific issues. One of the specific cases about inquiry based learning, is to stimulate problem solving behavior in which students engage with searching and learning not to expect each and every topics to be explained. The specified class groups should determine the method which is prepared to explain their goals and responsibility, guide their research, analyze data and report the results. In fact, issues are "purposeful but imperfect" so the members of the teams, cooperate with each other to explain the specific methods, problems or purposes together. This is similar to problem solving methods utilized by experts in the real circumstances[10].

Active engagement of students in learning process requires higher levels of thinking, analysis and application. Debate is one of the active learning methods and students' engagement in class discussion has high efficiency in learning. Nevertheless, in some situations in traditional classes, it is also impossible or impractical to engage all the students in a meaningful discussion. A large number of students in classes make it difficult to ask all of students to take active parts in the discussion. Also some of the students are inherently "silent" and avoid participating in discussions[11]. The purpose of this study was activating students in large classes with the use of educational training workshop, and observing the active learning behaviors throughout the workshop.Lalitha *et al* (2005) proposed a study about Therapeutic Knowledge and Skills in a Large Group Problem-Based Class. They taught the principles of pharmaceutical care regarding problem based learning for 180 students. To carry out these two strategies processing, 1) integrated patient cases and 2) Sharing real patient experiences in the classroom, were used. Study cases were developed to include drug-related problems from multiple therapeutic areas and to work effectively with these cases, students were expected to integrate previously learned information with new ones. To achieve the second strategy, real patients were invited to the classroom to share their illness experiences.

A detailed description of a real patient work-up, which also served as an ''integrated cardiology case,'' was described in details. Students indicated a high rate of satisfaction with these strategies, which allowed them to integrate information from multiple therapeutic areas while creating authenticity to their learning within a problem-based learning environment. Findings illustrate that students' ability to integrate and apply therapeutic knowledge and skills can be enhanced

within problem-based courses and by inviting real patients to share their illness experience with them. These strategies create an environment in which students can engage in effective learning, and help them to understand the importance of caring for patients and the valuable role a pharmacist brings to the health care team.

Oliveira and colleagues (2006), proposed a study about Teaching Strategies to Promote Active Learning in Higher Education. The purpose of this study was to analyze the effects that some strategies and instruments have had in changing the classroom environment. This pilot study involved four teachers and a group of 80 first year undergraduate students, drawn from the 300 students attending an introductory physic course. This course had three kinds of classes: theoretical (2 h/week), practical (2 h/week) and laboratory (2 h/week). Some results from this study suggest the need to introduce some changes in the strategies used. They suggested looking deeply in what was considered as factors for improving the quality of teaching physics in higher education to approach active learning[1].

Deb and colleagues(2007) provided a Pilot Evaluation about ALCs, in University of Minnesota. This pilot study involves a renovation of two general-purpose classrooms, were designed as Student-Centered Activities for Large Enrollment Undergraduate Programs (SCALE-UP). The goal for these new learning spaces was to create a student-centered, integrated, and active learning space using flexible design and innovative construction techniques that allow faculty and students to experience and assess new classroom designs and pedagogy. The size of these two ALCs included 117 and 45 students. large round tables that seat nine students each and switchable laptop-based technology, multiple fixed flat-panel display/projection systems, and an instructor station that allows selection and display of specific information were provided. These rooms also feature a 360-degree glass marker board around the circumference of the classroom. Overall, these ALCs yielded very positive responses from instructors and students. The instructors who were interviewed enjoyed teaching in the rooms so much and their only concern was a fear of not being able to continue teaching in these new learning spaces. Similarly, more than 85 percent of students recommended the ALCs for other classes. Instructors and students overwhelmingly feel that this space made a difference for them[12].

Pundak and colleagues (2009) proposed a study about Instructors' Attitudes toward Active Learning. Identifying the characteristic attitudes of "active instructors" towards active learning and discerning a distinction between these attitudes and those of the remaining instructors were the aims of this study. Using a flexible design and innovative construction methods, a new learning space was created as a student-centered, integrated, and active learning space. The study compared the averageattitudes score of the instructors (N=153). These pilot learning spaces provide new and innovative classrooms, demonstrate new flexible classroom construction techniques, and allow faculty and students to experience and assess new classroom designs and pedagogy[2].

MATERIALS AND METHODS

Samples

The sampling method was census, and all of the nursing students attending semesters 3 in College of Nursing and Midwifery ShahidBeheshti were entered (37 students).

Instrumentation

Data collecting tools include two direct observation forms, and a final exam form to measure the level of learning in cognitive domain.

- The direct observation form (No. 1) was used to perceive student's active learning behaviors in small groups' discussion. By this tool, observers recorded student's behaviors during 30-minutes of small group discussion. This tool included three areas: student's paying attention to team work; student's participating in group discussion and cooperation with; and individual student's trying to find the answer. To determine the content validity, content validity index was used, and to determine its reliability, one way ANOVA was measured. The results of one way ANOVA shows that the average scores of 3 observers were the same.
- The direct observation form (No. 2) was used to perceive student's active learning behaviors in large groups' discussion. By this tool, observers recorded student's behaviors during six (related to the discussion about six clinical situations) 20-minutes situations

in large group discussions (the whole class). A five degree Likert scale was used to score student's behaviors during each 20-minute. The direct observation form (No. 2): To determine its content validity, content validity index was used, and to determine the reliability, one way ANOVA was measured. The results of one way ANOVA shows that the average scores of 3 observers were the same.

- The final exam form was used to measure the level of student's learning in cognitive domain. This tool was included 13 questions at the level of analysis and synthesis about taking care of patients with internal heart disorders. To determine the content validity, content validity index was used. To determine its reliability, test-retest was used. The correlation coefficient was 0.999.

In this quasi-experimental study, the active learning behaviors of nursing students were directly observed throughout the three workshops in the field of "to care of patients with internal heart disorders ". In order to learn more deeply, the space of class was designed as a work shop. Due to high number of students, first students were divided to 6 groups with 6-7 members. Class setup was the case that the groups were sited as U shape together (Fig. 1).

At first, a scenario of one clinical situation was presented to each group. (The scenario of each group was different from others). These scenarios included some questions that the group must solve it with regard to previous studies and information, and also by using the resources teacher took them. To answer those questions, 30 minutes time was given to all groups. Also the teacher provided some books and pamphlets to the group with regard to the mentioned issue.

After the end of this 30-minutes time, all groups were ready to discuss the situation that they had been working on, with other students. In this way, inquiry and discussion in whole class had been started regarded scenario number 1.

Before beginning debate in large groups, a print of scenario No. 1 had been influenced between students, so they could think and have control on the issue, and record their answers and the points on the paper. The first question had been presented by one of the high number of students,Teacher had to manage discussion among whole class. The inquiry and debate had been continued for 20 minutes until all students reach final answer. Then the scenario No, 2, had been started and continued in the same pattern, the process of workshops have illustrated in Fig. 2.

The given data was analyzed using SPSS version 16; the mean and standard deviation of following data was measured.

RESULTS AND DISCUSSIONS

Table 3 represents the average of observed student's learning behaviors in three workshops. As it shown, in small group discussion with problem solving method, (during 30 minutes), in each three days the average time for student's pay attention to team work was more than 26 minutes; for student's participating in group discussion and cooperation the average time was more than 25 minutes; and for student's individual trying to find the answer was more than 21 minutes. Also the score of student's active participant in large group discussion (based on Likert scale) the time was more than 17 points. Table 4 illustrates that 75% of the students' answers to the questions of final exam, were at ideal level (with confidence interval (07/0) ± 75/0).

%Evaluation of students' behaviors associated with active learning, in small group discussion

In order to create discussion in small groups, the method of problem solving was used, and during the period of 30 minutes, the individual endeavorbehaviors mentioned in table 2 were measured. The mean time of student's paying attention length to team work (according to minutes) in each three days represents an increase in students' paying attention to small group discussions. In average, it can be said that, the mean of students' paying attention to small group discussion within 30 minutes, were equal to 28.32 minutes (SD=3.91) at the first day, 26.65 minutes (SD=7.12) at the second day, and 27.78 minutes (SD= 4.98) at the third day. In general, the quantities show that students had a very good attention to small group discussions and these finding are consistent with the results of Pundak *et al*., (2010) , huang (2002), and Lepinski , 2005[2, 13, 14].

The results of student's participating in group discussion and cooperation (according to

minutes) shows that the mean of these data in 30 minutes, were equal to 26.54 minutes (SD= 5.94) at the first day, 25.19 minutes (SD= 6.47) at the second day, and 26.67 minutes (SD= 6.33) at the third day before. In general, the quantities show that the students had a very good participation in cooperation with small group which is consistent with previous studies (Punduk *et al*., 2009 and Jonassen 2004)[2, 15].

The results of student's individual endeavor to find the answer (according to minutes) show that in every three workshops, the mean time

Table 1. The characteristics of Teachers and students in active classes

Characteristic	Teachers	Students
Environment	Provides active environment for cooperation, consultation, debating, analyzing and solving the problems	Participate in the active environment for questioning to clarify the problem , or use of additional resources in need, collecting information and record related observations
Motivation	Motivating students	Students show the feel of success and self-confidence, and a desire for sharing scientific research results in group
Values	Promoting cultural understanding and mutual values	Students learn how to respect each other, the beliefsand cultural values
Responsibilities	Teach how to accept responsibilities and being adjusted	Student cooperates with other students in groups and as equal partners, have their own responsibilities and share responsibilities among themselves
Equal chances	Providing the chances for using technology, educational environment , materials and time for every student	Students involve in a safe, responsible and ethical use of information technology, materials and equipment.
Communication	creating a sense of meaningful communications	Student actively participates in task, and completelyinvolves in it and shows required cooperation in achieving learning goals.
Behavior	Managing the classes, promote peace, order and regular behavior	Students respect each scientific findings and observations
Learning Process	1. Appreciating students' activities as 2. valuable parts of learning process 3. Promoting the feeling that mistake is a part of active learning	Student uses the risks of learning in class, such as reject a scientific claim, and defense and support of his/her scientific claim.

Table 2. List of Analyzed and measured data

Situation	Analyzed Data	Measured Data
In small group discussion	student's active learning behaviors in small group discussion	the length of student's paying attention to team discussion and cooperationstudent's participating in group student's individual endeavors to find the answer (according to minutes)*
In large group discussion	student's active learning behaviorsbehaviors in large group discussion	active participant in debate (based on Likert scale)*
In cognitive domain at the end of three workshops	student's level of learning in cognitive domain at the end of three workshops	student's ideal answers in the exam

* Friedman's test was used to determine significant difference between the averages calculated.

Table 3. The mean of observed student's active learning behaviors in three workshops

Mean (SD)	Observations recorded	Scale	First workshop	Second workshop	Third workshop
Workshop stage	observed behavior				
Small group discussion (problem solving)	student's pay attention to team work	Minute (0 – 30)	28.38 (3.91)	26.65 (7.12)	27.78 (4.98)
	cooperation withstudent's participate in group	Minute (0 – 30)	26.54 (5.94)	25.19 (6.47)	26.76 (6.33)
	discussion and student's individual trying to find the answer	Minute (0 – 30)	22.05 (9,17)	21.73 (10.80)	23.46 (9.93)
Large group discussion (inquiry)	students' participant in large group discussion	Likert scale (4 – 20)	18.20 (2.57)	18.26 (17.90)	17.90 (1.60)

Table 4. The mean of ideal students' answers to the questions of final exam (ideal / not ideal)

Desirable level of response	number	percent
Ideal	28	75%
Not ideal	9	25%

CI = 0.75 ± (0.07) (2)

of students' individual endeavor to find an answer within 30 minutes were equal to 26.54 minutes (SD=0.94) at the first day, 25.19 minutes (SD= 6.47) at the second day, and 26.76 minutes (SD= 6.33) at the third day. The quantities show that in general, students had a very good individual trying to find the answer in small group discussion (in direction with results of Jonassen, 2004)[15].

Table 5. The likert scale to scoring active learning behavior in large group discussion

Full willingness to participate in discussion (being involved in the discussion -with at least one response)	Attention to the class, without participating in the discussion (silent attention to the discussion)	listening to discussion without motivation (without interest and sometimes without attention)	listening to discussion with fatigue and impatience (tend to put an end to discuss)	Complete lack of attention to discussion (complete lack of attention)
5 scores	4 scores	3 scores	2 scores	1 score

Evaluation of students' behaviors associated with active learning, in large group discussion

For evaluation of students' active learning behaviors in large group discussion (discussion in whole class) the second direct observation form was used. It is necessary to note that for discussion in large group, the inquiry method was carried out for six clinical scenarios have been discussed in small groups. For each scenario, 20 minutes have been assigned (Table 3).

The results of evaluation of students' active learning behaviors in large group discussion (based on likert scale) in each 20 minutes scenario, were equal to 18.20 points (SD= 2.57) at the first day, 18.28 points (SD= 3.63) at the second day, and 17.90 points (SD=1.60) at the third day.

The scores of students'participating in large group discussion illustrate that using inquiry method is a very effective method to make students participate in large group discussion. Studies show that in active learning, the individual learner must play an active role and act more than a simple

listener. Learner must read, write, argue, ask or be involved in solving the problems (Oliviea *et al*. 2006, Tarling , 2001)[1].

%determine the level of students' learning, after implementation of blended learning model in large class

With regard to the fact that in educational workshops, with using problem solving and inquiry method, the effort was to reach the high levels of learning in cognitive domain; at the end of training, a descriptive examination in the level of analysis and synthesis was designed. If students answers were correct and complete (or 2/3 of their answers were correct), it was assigned "Ideal" and in the case that half of their answers were right, it was assigned "not ideal". With regard to table 2, 75% of the students' answers were in ideal level, and this shows that the level of learning was improved to analysis and synthesis.

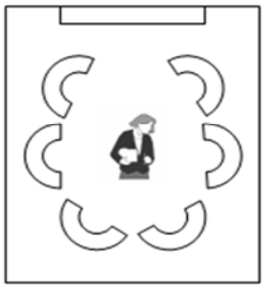

Fig. 1. Class set up for workshop

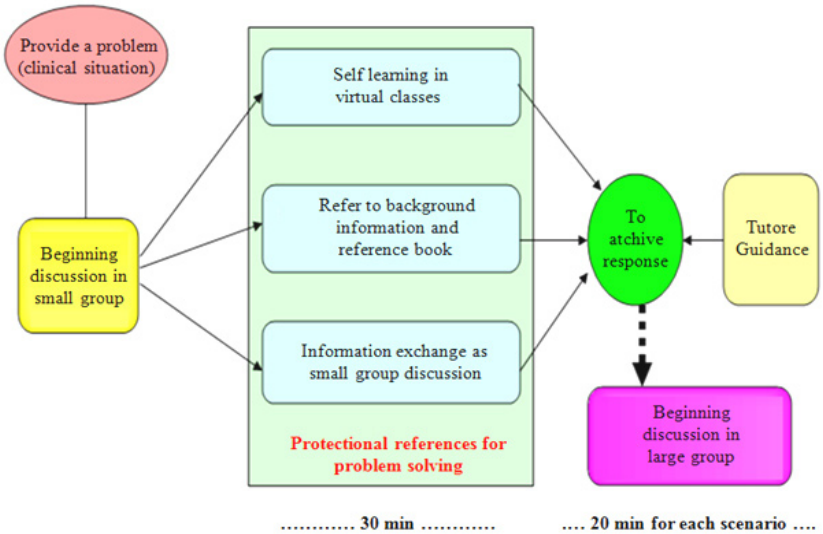

Fig. 2. Schematic view of discussion in class

In general, using these two learning methods-problem based learning and inquiry, can lead students to reach active learning standards, and improve the level of learning in cognitive domain[16].

CONCLUSION

Active learning methods have been concerned and debated in different educational systems; it refers to several models and focuses on teacher and students responsibilities, but in these explanation there is still the questions of proper techniques to use, distribution of chances and equipment and dealing with disjunctive classes and unfortunately the lack of functional suggestion or real application is seen in previous papers[17]. It is clear that active learning enhances the critical thinking skills and prepare the engaged students for solving real problems[18]. Participating in classroom debates improves self-confidence and the students found the topics practical; this might be a reason for surveying new solutions for problems, studying more and reach higher scores; In contrast, in the traditional lecture courses the probability of failure in exams is higher[19].

To activate students in large classes and engage them in learning activities, utilizing the advantages of workshop is very helpful. In this way, using scenarios for problem based learning in

small group discussion, and then inquiry to engage students in large group debate, are completely effective.

Previous studies indicated the positive influences of active-cooperative learning in nursing schools[20,21] and educators can apply such workshops to develop different teaching methods to meet the needs of students, especially in medical-surgical nursing courses, that have sequent clinical training. Educators can engage student actively in learning and deepen the level of learning especially in cognitive domain.

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