

The Practice of Presentation-Assimilation-Discussion (PAD) Class in the Practice and Training Course of Fundamental of Nursing Science Exploration and Effect Evaluation

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Abstract: Purpose: to discuss the practice pattern and application effect of PAD class in the practice and training course of Fundamental of Nursing Science for the nursing students in medical school. Method: PAD class is applied in the practice and training course of Fundamental of Nursing Science for 111 nursing students of the school, and after it is implemented, the recognition and achievement of the learning objectives during the implementation of "PAD class" are evaluated for the students, and the recognition of the students of nursing specialty on "PAD class" and their learning attitude and exam results before and after its implementation. Results: After implementation of PAD class, the recognition, learning attitude and exam results of the students of nursing specialty are higher those of them before its implementation ($P < 0.05$). Conclusions: The application of PAD class in the practice and training course of Fundamental of Nursing Science for the nursing students in the medical schools is conducive to the improvement of the learning enthusiasm of the students and their exam results.

Keywords: PAD (presentation-assimilation-discussion) class; Fundamental of nursing science; Practical teaching; Learning enthusiasm

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Under the background of expansion of enrollment of the colleges and universities, the higher education has entered into the stage of popularization in China, and the classroom teaching of the colleges and universities is still the traditional teaching dominated by the "teaching method", which is difficult to mobilize the learning initiative of the students. Professor Zhang Xuexin (2014), the Department of Psychology of Fudan University of Shanghai put forward "PAD (presentation-assimilation-discussion) class", the new model of the teaching reform based on the psychological rules, whose core concept is to give a part of class time to the teacher for teach-

er while giving the other part of class time to the students for their discussion and interactive learning, so they can participate in the class teaching process. The PAD class divides the teaching process into three parts: presentation, assimilation and discussion, in which assimilation is the key link of PAD class to separate the teacher's teaching and students' discussion in the class time (at the interval of a week or the time for one class), so that the students can have sufficient time for assimilation in accordance with their own arrangements before the discussion.

As a medical school that aims to cultivate high-level application-oriented professionals who meet the needs

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of society, practicing teaching in this session is a very important link in cultivating the basic practical skills and the necessary basic nursing knowledge for the nursing students. In the traditional practical training courses, the teaching pattern of "teacher teaches and demonstrates first, and then the students practice". The enthusiasm of the students in this teaching pattern is not strong, so the teaching effect is difficult to be guaranteed. In this study, the teaching pattern of "PAD class" is applied to the practical teaching of Fundamental of Nursing Science with the purpose of this study to stimulate the enthusiasm and initiative of students in learning, to cultivate students' ability of creative thinking and to improve teaching effectiveness. After a semester of the practical teaching of the PAD class, the results show a good effect. The detailed process is reported as follows.

1. Object and Method

1.1 Study Object

111 students enrolled in 2014 of nursing specialty in our school are selected as the objects of study, and are distributed to 5 practical training rooms with 22 to 23 persons in each training room to receive the teaching pattern of PAD class in the seven commonly-used operation technique teaching, i.e. medication withdrawal method, intracutaneous and subcutaneous injection, benzylpenicillin skin-test solution allocation, intramuscular injection, gastric lavage and cardiopulmonary resuscitation. One theoretical class is given in each odd week, and one the practical training class is given bi-weekly, with two courses at one time, with the time for each course of 50 minutes, and total time of 100 minutes.

1.2 Practice Method and Effectiveness Evaluation

1.2.1 Practice Method

According to the teaching arrangement of our school, the ratio of the theoretical class time to the experimental class time of the Fundamental of Nursing Science is 1:1 for the 2nd semester of 2015-2016 academic years, each of them is 36 class hours, a total of 72 hours, and 4 courses are arranged weekly according to the teaching plan. In this semester, I undertake the teaching study of the PAD class for five practical training rooms with a total of 111 practice courses. The implementation process of "PAD class":

1) Four courses of theoretical content shall be taught by the instructor, and after class, the students shall assimilate the relevant content of self-review and learning, in particular, they shall focus on learning the theory related practical training content biweekly, including the purpose,

use matter and operating steps etc. of the practical training operations.

2) The instructor shall take 2 minutes to teach the purpose of this practical training course when teaching the course biweekly. 15 minutes shall be given to the students for group discussion (each practical training room is divided into 4 groups, each group of about 5 people), and the practical training items within the group shall be applied for the pre-training exercises; After 25 minutes with each group of "exam help" link of the training demonstration, followed by sharing practice training experience, and mutual correction, troubleshooting; The next 15 minutes shall be used for the exchange between teacher and students, and the teacher shall carry out targeted Q&A, demonstration of key aspects and summary of the operation points; Then 40 minutes shall be used for exercise by students in accordance with a group of 2 people, and the teacher shall guide and regulate the operations one by one and shall randomly select some students for teaching individual simpler operation after the exercise is ended, which can test the effect of exercise and also deepen the memory of students. The time schedule of each stage can be slightly adjusted according to the difficulty degree of operations.

3) When the theoretical class is carried out on another odd week, the teachers and students shall review the common problems in the last practice training course. The whole "PAD class" is a process in which the teachers and students can participate in both of "teaching" and "learning" together, greatly mobilizing the students' learning enthusiasm and initiative during pre-demonstration in the student group and demonstration of "exam help" between the groups. The "PAD class" teaching for a total of 8 practical training courses is implemented in this semester.

1.2.2 Effectiveness Evaluation

1) The Questionnaire on the Recognition and Achievement of "PAD class" Objectives uses the questionnaire of Professor Zhang Xuexin on "PAD class" in which nine questions that are suitable for the subject are selected, including the objectives of the course and the promotion of learning through homework, group discussion purposes, promoting learning through sharing, paying attention to the usual learning, the recognition and achievement of objectives of the assessment method. The questionnaire score shall be divided into five levels, 1 point for significant disagreement, 2 points for disagreement, 3 points for being neutral, 4 points for agreement, and 5 points for significant agreement.

2) The Questionnaire on the Learning Attitude for

the Nursing students in Higher Vocational School uses the questionnaire on the learning attitude for the nursing students in higher vocational school prepared in 2011. There are 23 items in this questionnaire, including four dimensions of personal interest in nursing, learning habits, learning experience and professional knowledge. The questionnaire score uses Likert 4 levels, 1 point for significant inconsistency, 2 points for inconsistency, 3 points for consistency, and 4 points for significant consistency, vice versa. The higher the score is, the more active the learning attitude will become. The total Cronbach's alpha coefficient for this questionnaire is 0.927, and the content-validity index (CVI) is 0.96.

3) After the implementation of the "PAD class", the collective testing method shall be used where the purpose, significance, etc. of the survey shall be explained to the subjects before the survey. The questionnaires shall be distributed and returned in a unified way, requiring all nursing students independently to complete all questionnaires in 30 minutes.

4) The assessment of the students after the implementation of "PAD class". The assessment process is divided into four parts, i.e. "usual evaluation", "process evaluation", "homework evaluation" and "final evaluation". In the usual evaluation, 10 points shall be given the students with full-attendance, and the corresponding points shall be deducted in accordance with the proportion of absenteeism; the emphasis of the process evaluation is the "exam help" link to evaluate the enthusiasm of the students to participate in the class interaction and the participation of the skill demonstration of the students. Participation of the feedback to the teaching provided by the students; the score of up to 20 points can be obtained for the enthusiasm for sharing with us and seeking for help; homework evaluation is a report on practice written by the students after each practical training class, with 10 points in total, and the corresponding points will be deducted in proportion for failure of timely handing in the homework; the skill test at the end of the semester shall be conducted in accordance with the standard operation process with the proportion of 60 points where the teacher will firstly select the three items of similar difficulty as the skill test items, and then the students can determine their own assessment items by drawing lots, and the scoring shall be implemented according to the assessment criteria.

1.3 Statistical Methods

Use Excel software for preliminary input and finish and use SPSS18.0 statistical software for analysis and processing.

2 Results

2.1 The Result of Returning the Questionnaires After Implementation of "PAD class"

111 questionnaires are distributed, and 107 questionnaires (96.39%) are valid in the returned questionnaires.

2.2 The Analysis Result of the Survey of the Students on Recognition and Achievement of the Objectives for All Problems Occurred in the Process of Implementation of "PAD class"

In this survey, the situational exercise encouraging the students to master the key points and difficulties of the knowledge to achieve the practical training course of nursing by grouping discussion and practice is the one with the highest score (4.50 ± 0.66) in the results of the survey of the recognition of the objectives during the implementation of "PAD class" teaching process, see Table 1 for the details.

The one obtaining the highest score from the students in the results of the survey on achievement of objectives during implementation of "PAD class" teaching process is as shown in Table 1, Table 2.

2.3 The Scores (mean \pm SD) of the Learning Attitudes of The Students Before and after Implementation of "PAD class"

The total scores of the learning attitudes before implementation of "PAD class" are (3.20 ± 0.35), and the learning experience among the items has the highest score (3.53 ± 0.44); The total scores of the learning attitudes after implementation of "PAD class" are (3.42 ± 0.33), and the learning experience among the items has the highest score (3.54 ± 0.38), see Table 3 for details.

2.4 The Comparison of the Scores of the Students before and after Implementation of "PAD class"

The theoretical score (80.61 ± 11.76) and skill score (82.27 ± 7.12) of the students before implementation of "PAD class". After its implementation, with the theoretical score (84.33 ± 5.36) and the skill score (86.30 ± 5.09) of the students, both of the theoretical score and the skill score of the students have the statistical significance before and after implementation of "PAD class" ($P < 0.05$). (as shown in Table 4)

3. Discussion

3.1 The Implementation of "PAD class" Has Changed the Traditional Teaching Pattern and Improved the Learning Enthusiasm of Students

Looking from the five core links, that is, teaching of "PAD

Table 1. Results of the Recognition of the Students on the Objectives of All Problems in the Teaching Process of "PAD Class"

| S/N | Contents | N | Mean \pm SD |
|-----|--|-----|-----------------|
| Q.1 | The textbooks with rich contents, clear structure and certain difficulty and challenge are required | 107 | 4.49 \pm 0.72 |
| Q.2 | To help students get familiar with the unit content, overcome the key points and difficulties through teacher teaching | 107 | 4.43 \pm 0.74 |
| Q.3 | To promote the enthusiasm of students in nursing training courses through getting the students familiar with the key elements of this unit | 107 | 4.36 \pm 0.71 |
| Q.4 | To encourage every student to master the key points and difficulties of knowledge in practice to realize the situational exercise of nursing practical training course through group discussion and practice | 107 | 4.50 \pm 0.66 |
| Q.5 | To promote the students to learn from each other and improve together through the sharing of student training techniques | 107 | 4.29 \pm 0.88 |
| Q.6 | To help them master the key points and difficulties to avoid those being accumulated before clinical practice by urging students to complete the practical training of nursing techniques | 107 | 4.38 \pm 0.75 |
| Q.7 | A combination of usual practice and final exams is used to assess the learning effect of the student more accurately and fairly | 107 | 4.36 \pm 0.80 |
| Q.8 | Students can control the learning load on this subject based on individual learning motivation and time | 107 | 4.34 \pm 0.76 |
| Q.9 | The teachers can conduct scoring and comment on the students' a technique practice in a timely manner to encourage students to learn and promote their progress | 107 | 3.97 \pm 0.86 |

Table 2. Findings of the Achievement of the Students on the Objectives of All Problems in the Teaching Process of "PAD Class"

| S/N | Contents | N | Mean \pm SD |
|-----|--|-----|-----------------|
| Q.1 | The textbooks with rich contents, clear structure and certain difficulty and challenge are required | 107 | 4.53 \pm 0.69 |
| Q.2 | To help students get familiar with the unit content, overcome the key points and difficulties through teacher teaching | 107 | 4.39 \pm 0.72 |
| Q.3 | To promote the enthusiasm of students in nursing training courses through getting the students familiar with the key elements of this unit | 107 | 4.42 \pm 0.75 |
| Q.4 | To encourage every student to master the key points and difficulties of knowledge in practice to realize the situational exercise of nursing practical training course through group discussion and practice | 107 | 4.44 \pm 0.73 |
| Q.5 | To promote the students to learn from each other and improve together through the sharing of student training techniques | 107 | 4.10 \pm 0.77 |
| Q.6 | To help them master the key points and difficulties to avoid those being accumulated before clinical practice by urging students to complete the practical training of nursing techniques | 107 | 4.32 \pm 0.65 |
| Q.7 | A combination of usual practice and final exams is used to assess the learning effect of the student more accurately and fairly | 107 | 4.38 \pm 0.68 |
| Q.8 | Students can control the learning load on this subject based on individual learning motivation and time | 107 | 4.10 \pm 0.81 |
| Q.9 | The teachers can conduct scoring and comment on the students' a technique practice in a timely manner to encourage students to learn and promote their progress | 107 | 4.40 \pm 0.76 |

Table 3. Scores (Mean \pm SD) of the Learning Attitudes before and after Implementation of "PAD Class"

| Group | Number of people | Total mean | Learning interest | Learning experience | Learning habit | Understanding of the nursing specialty |
|-----------------------|------------------|-----------------|-------------------|---------------------|-----------------|--|
| Before implementation | 111 | 3.20 \pm 0.35 | 3.08 \pm 0.45 | 3.53 \pm 0.44 | 2.77 \pm 0.42 | 3.19 \pm 0.51 |
| After implementation | 107 | 3.42 \pm 0.33 | 3.32 \pm 0.35 | 3.54 \pm 0.38 | 3.02 \pm 0.49 | 3.37 \pm 0.32 |
| t | | 3.145 | 4.352 | 0.311 | 3.674 | 2.972 |
| P | | 0.000 | 0.000 | 0.756 | 0.000 | 0.004 |

Table 4. Comparison of the Academic Scores of the Students before and after Implementation of "PAD Class"

| | Number of people | Theoretical score | Skill score |
|-----------------------|------------------|-------------------|------------------|
| Before implementation | 111 | 80.61 \pm 11.76 | 82.27 \pm 7.12 |
| After implementation | 111 | 84.33 \pm 5.36 | 86.30 \pm 5.09 |
| t | | 3.521 | 3.265 |
| P | | 0.000 | 0.002 |

class", self-review after class, simulation demonstration, discussion and summary, the students have higher evaluation on the completion effect and recognition and the objectives of "PAD class". 68% of students are satisfied with their learning effectiveness in "PAD class". Compared with the traditional teaching mode of practice class, 84% of students think that "PAD class" is good or better. These findings show that the "PAD class" is approved by a majority of students in practical training teaching and also is more suitable for classroom pattern of practical training of nursing. The learning enthusiasm of the students is improved.

3.2 The Implementation of "PAD class" Has Improved Students' Learning Attitude, Promoted Students' Interest in Learning, Changed Their Learning Habit and Enhanced Students' Understanding of Nursing Specialty

As can be seen from Table 3, before and after the implementation of "PAD class", the overall average score of student learning attitude has statistical significance ($P = 0.000$), interest in learning is significantly improved ($P = 0.000$), learning habits was improved ($P = 0.000$), and nursing profession is significantly improved ($P = 0.004$). The reason for the "PAD class" is to enable students to carry out simulation demonstration, sharing the problems found in the link, so that the students can learn with the problems. The teachers shall give the professional answers

the problems of students. In this best teaching pattern, both of teaching and learning have a definite object in view to fully demonstrate their own ability during sharing the discussion process, so that the learning attitude of the students can be significantly increased.

3.3 "PAD class" Has Improved the Scores of Students

From the results of the analysis before and after the implementation of "PAD class" in Table 4, the students' theoretical score and skill score have been greatly improved. At the same time, the achievement of students' scores is also one of the best interpretations of the change of students' learning attitude after the implementation of "PAD class".

3.4 The Implementation of "PAD class" Establishes a Sense of Harmonious Team Relationship Between Teachers and Students

What is demonstrated in the "PAD class" teaching is the process of cooperation and learning between the students and teachers, so that the students will be prepared, and the teachers can guide the teaching. In the links of student discussion and simulation demonstration, the problems can be found, and the potential of students can be explored to work together with classmates and solve the problems together; in the discussion, the students have also learned to learn from others' perspectives to promote each other, enhance understanding, deepen the friendship among

students and strengthen the awareness of teamwork. In sharing the results among the groups, the teachers shall be responsible for guiding and inspiring students. The communication between teachers and students is gradually increasing. By implementing "PAD class" in general, the magnitude of interaction between students and students, between teachers and students, has been significantly improved, facilitating a harmonious relationship between teachers and students.

To sum up, Professor Zhang Xuexin's "PAD class" teaching pattern is proposed based on the psychology support theory, which is the new classroom pattern for universities and colleges targeting at contemporary college students suitable for the conditions of China. In the implementation of "PAD class", emphasizing that students are the main body and teachers are the objects is to enable students to learn with problems in the practical training class to stimulate their own initiative and give full play to their leading role in learning while strengthening team spirit and mutual help and learning. However, the items of implementation of the "PAD class" project are only the items on which the students have certain basis. How to use "PAD class" more flexibly? How to improve the initiative of the students in participating in the "discussion" link? We also need to have a further discussion.

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