2

International Journal of Nursing Education

www.ijone.org

Application of the R2D2 Model for Active Learning Strategy in Graduate Midwifery Course

**Sununta Youngwanichsetha[1], Sasitorn Phumdoung[2], Sureeporn Kritcharoen[1],
Sopen Chunuan[3], Sasikarn Kala[3]**

*[1]Associate Professor, [2]Professor, [3]Assistant Professor, Faculty of Nursing, Prince of Songkla University,
Hat Yai, Songkla, Thailand*

ABSTRACT

Background: Active learning strategy is considered an effective method to improve learning outcomes. The R2D2 model is proposed as a framework to promote student engagement in learning process.

Purpose: This study aimed to examine the application of read, reflect, display and do model (R2D2) to promote active learning in advanced Midwifery on course pathophysiology and pharmacology.

Methodology: A descriptive qualitative research was employed. The study setting was the graduate program of Faculty of Nursing, Prince of Songkla University, Thailand. Six graduate nursing students were approached and recruited as informants. Four steps of teaching and learning activities were implemented: 1) select course contents were assigned as online reading assignment, 2) reflective writing based on the reading assignment, 3) concept mapping to summarize essential ideas, and 4) in-class and online presentation of learned activities. Learning outcomes and students' responses were evaluated. Data were collected using in-depth interviews. Content analysis was conducted to analyzed qualitative data.

Results: Achievement of desired learning outcomes was the results of application of the R2D2 model. Four themes emerged: 1) intending to read, 2) reflecting challenge, 3) displaying creatively, and 4) doing it interestingly.

Conclusion: Findings showed that the students achieved good learning experiences and were satisfied with these learning activities. This teaching model can be used to encourage constructive knowledge among graduate students.

Keywords: Educational innovation, active learning, learning outcome, R2D2 model

INTRODUCTION

Active learning approach enhances academic achievement among graduate students. It is useful to encourage higher order of thinking skill for the 21st century learning and teaching strategy. Research evidences support that participating in active learning activities by presenting and performing in class helps students sustain 70% to 90% of learned contents[1]. There are a variety of active learning methods that include class discussion, small group discussion, think-pair-share, student dyad, short writing exercise, collaborative learning group, student debate, reaction to a video and others.

The read, reflect, display, and do (R2D2) model is used to design online active learning activities in order to encourage outcome-based education. The model is developed using constructivism framework. This teaching and learning model is composed of four steps: 1) reading assigned contents and listening to online

---

Corresponding author:
Sununta Youngwanichsetha
Faculty of Nursing, Prince of Songkla University, Hat Yai, Songkla, 90112, Thailand
Email: sununta.y@psu.ac.th, sununta.y@gmail.com

lectures, 2) reflecting learned activities and knowledge, 3) displaying demonstration of problem solving strategies, and 4) doing by presenting achieved learning outcomes[2]. These teaching and learning strategies are considered essential activities to obtain a deeper understanding of learned contents.

Prior studies show that active learning methods integrated in nursing graduate education achieve better learning outcomes. Students' participation in a collaborative learning group as part of end-of-life care class demonstrated desirable abilities in analyzing, evaluating, and creating competency[3]. Problem-solving activities in class effectively engage student in active learning and promote transformation of theory to practice[4]. Application of active learning strategies requires some other important aspects such as class management, class outlines, prepared learning contents, and assignment of students' roles[5].

Previous studies also show the effectiveness of active learning application in health science and nursing education. However, most teachers in graduate Midwifery program prefer lecture over active learning method. Therefore, this study aimed at applying the R2D2 model in advanced pathophysiology and pharmacology course in order to promote active learning participation.

RESEARCH METHODOLOGY

Descriptive qualitative research was designed to examine students' learning outcomes and satisfaction after implementing the R2D2 model in advanced pathophysiology and pharmacology course. Institutional Review Boards of Faculty of Nursing, Prince of Songkla University approved this study which was conducted in the first semester of 2017 academic year. Six Midwifery graduate nursing students were invited to participate in this study. Written-informed consent was obtained before the data-collecting interviews. Course orientation provided information about teaching and learning strategies based on the R2D2 model, which would be applied on eight topics about the pathogenesis and case studies. Six of these topics were assigned as individual assignments-1) diabetes and obesity, 2) anemia and thalassemia, 3) abortion and placenta previa, 4) preterm labor and post-term pregnancy, 5) hypovolemic shock, and 6) sexually transmitted disease. Two other topics assigned as group activities include hypertensive disorders and cardiac disease. Data were gathered using in-depth interviews and reflective writing. Content analysis was used to analyze qualitative data following four steps: 1) identify meaning units, 2) comparing with the original data, 3) categorization, and 4) drawing realistic conclusion[6].

FINDINGS

The informants were six graduate nursing students aged 25-29 years old enrolled in Midwifery program. Four students were Buddhists and two were Muslim. Four themes were identified: 1) intending to read, 2) reflecting challenge to, 3) displaying creatively, and 4) doing it interestingly.

Intending to read

The student reported that they had full intention to read the course outlines and assigned reading contents both on paper and online through learning management system (LMS). As a result, they could better understand pathogenesis of common reproductive diseases during class time. Example of papers and videos were used to clearly illustrate the development of cellular dysfunction and related system disorders. A participant's confirming positive experience via statement below.

"I took responsibility to complete my reading assignments. I also did additional research in order to gain better understanding of the topic. In addition, I like to watch some YouTube videos. I intended do my best to learn." [student 1-M]

Reflecting challenge

Reflecting on class activities and learned knowledge were perceived as challenging. The students were asked to give their responses and reactions verbally and in writing during class including at the end of semester. Comprehensive demonstrations of reflective ideas challenged the students' abilities as indicated in the following statement.

"Sharing my opinions during class was not easy. It took critical thinking to analyze and evaluate what I have learned or can do. It was challenging for me to illustrate essential learning issues." [student 4-N]

Displaying creatively

After reading and reflecting, the students were tasked to demonstrate their knowledge various formats, such as

creating scenarios, concept mapping, role playing, and producing reports. The contents were presented both in class and via online learning management system (LMS). Some of students' responses are shown below.

"I like to map out my ideas. I was enthusiastic to write a summary of what I have learned. These understandings were helpful for the exams." [student 1-M] *Creating the learning outcomes was difficult process requires both sciences and arts."* [student 3-S]

Doing it interestingly

Finally, students were to conduct presentation in class and submit reports. They attempted to do it interestingly by showing examples of case study, role playing, and participating in a learning game. Through participation, the students were engaged in active learning activities and motivated continue learning the desirable contents. The students' experiences are reported below.

"Our group chose to role play during the presentation to make it fun and interesting. We developed some themes to present and selected interesting issues to demonstrate. Our classmate and teacher appreciated and enjoyed our work." [student 5-H, student 6-T]

These findings resulted in achievement of desired learning outcomes and satisfaction with learning activities in class (Figure 1).
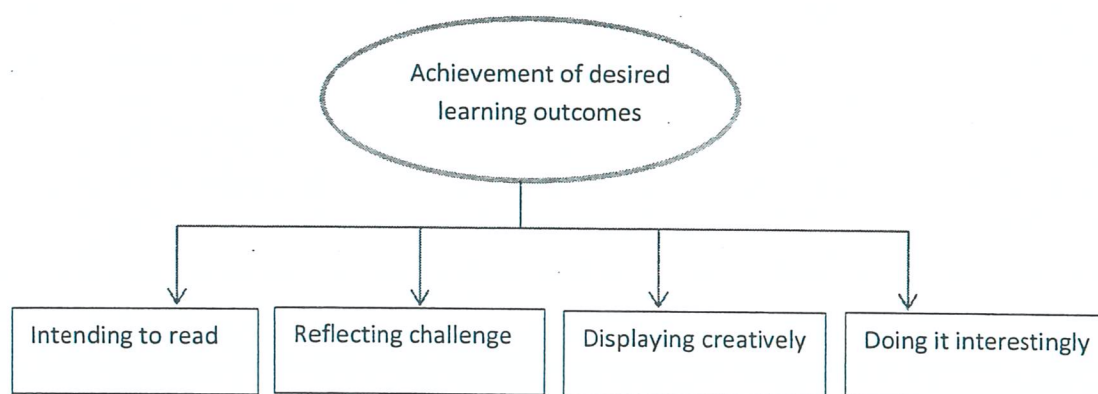

Figure 1 Achievement of desired learning outcomes from application of R2D2 model

DISCUSSION

Application of the R2D2 model helped design active learning activities in classroom. This study's finding showed achievement of student satisfaction express by the student participants. One foundational learning outcome was shown through the students' intention to read. Prior studies support that students taking responsibility to read the assigned topics and related contents would facilitate their overall comprehension understanding of such topics[7]. However, required contents should also be well planned and organized. The students should be informed to read important papers before class so to allow active participation in a given class activity[8]. For these reasons, reading preparation prior to attending class ensures active learning outcomes[9].

Second outcome is measured through reflective writing. The students were challenged to reflect what they had learned. The ability to reflect shows a positive learning experience while creates a new learning styles. Reflective writing also encourages critical thinking among students[10]. This study showed that the students could display their knowledge creatively. Thirdly, displaying knowledge in class was considered effective method to help students sustain the learned knowledge[11]. Learning in group was also effective to support the R2D2 application[12-13].

Lastly, the students could demonstrate learned knowledge interestingly by presenting in class and online via LMS. In class activities should be well-planned and organized in order to enhance and desires learning outcomes[14]. However, the teaching team and

learning environment must also be well-prepared to facilitate the application of the R2D2 model and other related active learning activities. It can be used to support active learning strategy to promote engagement among graduate students learning processes. Course instructions and time management should be designed and scheduled before start of class.

Conflict of Interest: Nil

Source of Support: Faculty of Nursing, Prince of Songkla University, Hat Yai, Thailand

Ethical Approval: Ethical approval was taken from Ethical Review Committee of Faculty of Nursing, Prince of Songkla University, Hat Yai, Thailand.

REFERENCES

1. Perri MG, Peoples-Sheps M, Blue A, et al. Public health education at the university of Florida: Synergism and educational innovation. Public Health 2015; 105: S83-S87.

2. Bonk CJ, Khoo E. *Adding some TEC-VARIETY.* Indiana: Open World Books; 2014. p.49-50.

3. Bailey C, Hewison, A, Orr S, Baernhold, M. Learning about end-of-life care in nursing: A global classroom educational innovation. J Nurs Educ 2017; 56: 688-691.

4. Pepin J, Goudreau J. A nursing education research framework for transformative learning and interdependence of academia and practice. Nurse Educ Today 2017; 52: 50-52.

5. Pereira-Santos D, Cavalconte Prudencio RB, de Carvalho A. Empirical investigation of active learning strategies. Neurocomputing 2017;1: 1-13.

6. Bengtsson M. How to plan and perform a qualitative study using content analysis. NursingPlus Open 2016; 2: 8-14.

7. Walling A, Istas K, Bonaminio GA, et al. Medical student perspectives of active learning: A focus group study. Teach Learn Med 2017; 29: 173-180.

8. Vetter MJ, Beth L. Tactics for teaching evidence-based practice: Enhancing active learning strategies with a large class of graduate evidence based-practice research in nursing students. Worldviews Evid Based Nurs 2017; 14: 419-421.

9. Louws ML, Meirink JA, van Veen K, et al. Teachers' self-directed learning and teaching experience: What, how, and why teachers want to learn. Teach Teach Educ 2017; 66: 171-183.

10. Carter AG, Creedy DK, Sidebotham M. Measuring critical thinking in pre-registration midwifery students: A multi-method approach. Nurse Educ Today 2018; 61: 169-174.

11. Hnatyshyn T. Teaching pathophysiology using a card set: An active learning strategy. Teach Learnn Nurs 2018; 13: 129-130.

12. Croy SR. Development of a group work assessment pedagogy using constructive alignment theory. Nurse Educ Today 2018; 61: 49-53.

13. Wedgeworth ML, Carter SC, Ford C D Clinical faculty preceptors and mental health reflections: Learning through journaling. J Nurse Pract 2017; 13: 411-417.

14. Symrpas I, Digelidis N. Watt A, et al. Physical education teacher's experiences and beliefs of production and reproduction teaching approaches. Teach Teach Educ 2017; 66: 184-194.

15. Tedesco-Schneck M. Active learning as a path to critical thinking: Are competencies a road block? Nurse Educ Pract 2013; 13: 58-60.