



# The 19<sup>th</sup> Thai Medical Education Conference

Celebrating 20<sup>th</sup> Anniversary of Mae Fah Luang University



## Leadership towards Medical Education Excellence

December 19-21, 2018 | Mae Fah Luang University

# รายงานรวมบทความวิจัย

## STRUCTURED REFLECTIVE WRITING TO INCREASE CONFIDENCE LEVELS IN EMERGENCY OBSTETRIC ANESTHESIA OF NURSE ANESTHETIST STUDENTS

Patcha Hortrakul<sup>1</sup>, Sahatsa Mandee<sup>2</sup>, and Kasana Raksamani<sup>3</sup>

<sup>1</sup> Master of Science Program in Health Science Education, Faculty of Medicine Siriraj Hospital, Mahidol University, 2 Wanglang Rd. Bangkoknoi Bangkok 10700 Thailand.

<sup>2,3</sup> Department of Anesthesiology Faculty of Medicine Siriraj Hospital, Mahidol University 10700, 2 Wanglang Rd. Bangkoknoi Bangkok 10700 Thailand.

\*Corresponding Author's E-mail: patchahor@gmail.com

### ABSTRACT

**Introduction:** There is a lack of studies comparing the effectiveness of using the structured reflective writing and the structured feedback and normal descriptive reflective writing and the general feedback. **Objectives:** The purpose of this experimental study was to compare the confidence level after went through the learning methods the structured reflective writing and the structured feedback for the improvement of confidence level to the application of normal descriptive reflective writing and the general feedback. **Methods:** 36 nurse anesthetic students (NAS) of Siriraj Hospital, who were the targeted and sampled population by matching-sampling in emergency obstetric anesthesia. The NAS received the 2 types of reflection and feedback following a scenario-based, hands-on workshop in general anesthesia for emergency obstetrics, with the comparison of confidence level before the workshop, immediately after the workshop, and after having completed 2 cases of general anesthesia. All students completed the confidence tests and reflective writing reports. The repeat measured data analysis consisted of frequency, percentage, mean, standard deviation, paired t-test, and ANOVA. **Results:** There were the changed scores between the 2<sup>nd</sup> and the 3<sup>rd</sup> confidence tests after the increased scores of the 1<sup>st</sup> confidence test for each question, but not significantly different between the groups in all questions. The writing reports of reflection demonstrated that the structured reflective questions could guide the participants to succeed in the depth of reflection more than the non-structured reflective questions. **Conclusion:** Educator should include the structured reflection writing with structured feedback to could guide the students to succeed in the depth of reflection.

**Keywords:** Structured reflective writing, Reflection, Structured feedback

---

### 1. INTRODUCTION

The purpose of one-year training program for Nurse Anesthetist Students, jointly organized by the Department of Anesthesiology, Siriraj Hospital and the Royal College of Anesthesiologists of Thailand, was to help solve the anesthesiologist shortage problem. The contents of this training program consisted the theory of anesthesiology, practice and related laws in nurse anesthetist profession. Unlike the registered nurses who mostly follow orders, the nurse anesthetist tasks are to look after anesthetized patients and make critical lifesaving decisions. In particular, they are responsible for anesthesia management of pre-operative, intra-operative, and post-operative care in specific situations based on several criteria. Hence, the training program must provide

essential knowledge and skills to support overall management of critical situations.

One of critical situations, the management of anesthesia in obstetric emergency cases differs from other patients due to the physiologic changes related to pregnancy. The Nurse Anesthetist Students (NAS) need to learn the skills in making critical decisions on adverse effects.<sup>1</sup> They also have to change themselves from nursing professional practice under the supervision to manage the critical conditions.<sup>2</sup> At present, to increase the likelihood of successful obstetric surgery and reduce complications with lower maternal mortality, a commonly used anesthetic in elective obstetric surgery patients is a spinal block compared to the general anesthesia.<sup>3, 4</sup> At Siriraj Hospital, most patients both in and out of office hours received the spinal block. Particularly, some

hospitals do not have anesthesiologists, and Thai legal regulations do not allow nurse anesthetists to provide the spinal block. Then, the only option available is to provide general anesthesia.

To improve the general anesthesia experience in emergency obstetric patients, the NAS training program of Siriraj Hospital has provided a scenario-based, hands-on workshop on “General anesthesia for emergency obstetric patients” since 2011. According to a prospective study for workshop evaluation<sup>5</sup>, the NAS commented that workshop did not help to improve their performance skills and self-confidence when working with the team in emergencies. The lack of confidence to make decisions as a teamwork and solve problems in critical situations were crucial.

From many studies in medical education, there are many presented learning methods to promote critical thinking in post-graduation, such as reflection, feedback, deliberate practice, problem-based learning, simulation, and experiential learning, etc.<sup>6</sup> In the meantime, reflection with feedback yields additional benefits and could build the students’ confidence during the tasks.<sup>7</sup>

The conceptual frameworks of this study included constructivist theory, experiential learning theory, critical thinking, self-confidence, reflection, and feedback. (see Figure 1)

1. Constructivist theory is a key process in the learning methods to enhance the professionalism of medical learner’s capabilities.<sup>8,9</sup>

2. Experiential learning is the interaction between humans and the environment as extremely important for the development of skills<sup>10</sup>, with 4-stage learning processes of the best practice to improve skills and professionalism.<sup>11, 12</sup>

3. Critical thinking is the intellectual process as guidelines to beliefs and knowledge.<sup>13, 14</sup> In particular, the critical thinking is a basis of self-confidence improvement as a key process in learning methods to enhance professionalism of medical learner’s capabilities.<sup>15</sup>

4. Reflection is a educational principles as potential for a successful learning outcome in the thinking processes applied with practical knowledge for routine decision making towards learning and professional development.<sup>16, 17</sup> It is a method to engage learners into knowledge with procedural skills.<sup>18, 19</sup> In the medical education setting, reflective thinking can apply into learning processes to enhance professionalism as a basis in the critical life-threatening situations.<sup>20</sup> Whereas, there are three types of reflective communication: verbal, nonverbal, and written reflection. Each type of reflection is essential for the improvement of critical thinking with different impacts, depending on the levels of depth,

quality, and activities that promote reflection.<sup>21</sup> Verbal and non-verbal reflection can be beneficial for the workplace or small groups as well as in the assessments compared to the lectures in classroom. Through reflective writing, students are part of decision-making and it is essential to establish students’ knowledge of influences.<sup>22, 23</sup>

In the meantime, the two types of written reflection include non-structured and structured reflective writing. While, normal descriptive reflection usually presents with an event and a concrete experience. The quality of a non-structured reflective writing report depends on the reflective skills. With the structured reflective writing, it is a guidance for students to increase their critical-thinking skills and professional growth.<sup>24</sup>

Nevertheless, the written reflection in this study was based on Gibbs’ reflective writing<sup>25</sup> and the 4-level framework of Kember & et al.<sup>26</sup>

Gibbs’ reflective writing was the framework for reflective question guideline as follows:

Describe	Describe, what happened?
Feelings	How did it make you feel?
Evaluate	What was good or bad?
Analyze	What sense could you make of the situation?
Conclude	What general and specific conclusions could you draw?
Action	What next, or what would you do next time?

This set of reflective questions was the guidance to increase their critical-thinking skills in reminding of their tasks, thus increasing the complexity of reflective thinking.<sup>27</sup> It also encouraged the students to reflect on their learning through the development of crisis tasks.<sup>28</sup>

The framework of Kember & et al involved the content analysis of reflective notes in four levels as:

- 1) Non-reflective or habitual action of descriptive explanations on the physical meaning in real situations.
- 2) Understanding as the thoughtful activity of each individual, using the existing knowledge and the comprehension of topics or concepts.
- 3) Reflection with the application of theories to interpret the relationships through personal experiences.
- 4) Critical reflection as higher level of reflection with time taking in the processes and displaying steps.

Nonetheless, this 4-level framework of Kember & et al required teachers’ evaluation to clarify the reflective thinking from the reflective report.

Feedback as a reflection process with given comments after the students’ performance of self-reflection to enhance complex critical thinking for the correction of poor performance.<sup>29</sup> Feedback communication may use

different types of modalities. Verbal or oral feedback is the speech conversation between teachers and students, particularly the direct observation of clinical performance. Written feedback is the instructors' written comments for the completed assignments.<sup>30,31</sup> Meanwhile, two types of written feedback comprise the general feedback and the structured feedback. The general feedback implies whether students have a distorted image of their capability and redress them in the process towards a more accurate reflection on their performance. The structured feedback connects to the objectives and assist learners to understand the best alternatives.

This study applied the 4-level feedback of Hattie & Timperley<sup>32</sup> to explore the meaning of feedback and the conceptual analysis for power of the study, as follows:

- 1) Feedback about the task or product
- 2) Feedback about the processing of the task
- 3) Feedback about self-regulation
- 4) Feedback about an individual person

Reflection and feedback are two basic teaching methods in clinical settings. Participants involving in one time of the community experience can acquire greater self-insight and recognition of the need to engage in service at the level of each individual.<sup>33</sup> In contrast, those with more than one time of involvement not only recognize the need to engage in service, but also are able to move beyond the reflection at the individual's level.<sup>29,34</sup>

In the meantime, two types of reflection with feedback include non-structured feedback reflection and structured feedback reflection. Traditional teacher-learner assessment focuses on group feedback, which is a simple action for a teacher to provide feedback, but it is often very poorly effective for an individual student. Descriptive feedback comments students towards real reflection from real performance. In normal teaching method, feedback from the teachers' perceptions may not often focus on those of the learners. If not complicated, the points of problems from both perceptions may not at all have an impact.

While, the process of the structured written reflection maintains the guided reflective questions to help the scope of writing.<sup>35</sup> The structured reflective writing combined with the facilitative feedback may likely to impact students for new knowledge, deeper discussion enhancing the students' reflective capacity, and new ways of action planning.<sup>9</sup>

Gibbs' reflective writing framework and Hattie & Timperley's four levels of feedback appeared in many studies as the guided reflective questions and feedback

guideline.

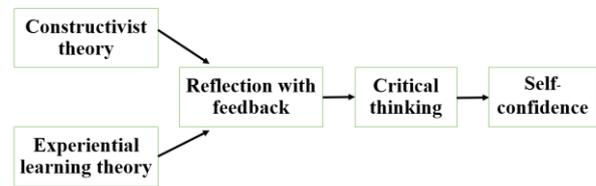


Figure 1 Conceptual framework

## 2. RESEARCH QUESTIONS, PURPOSE, AND HYPOTHESIS

The research question in this study was whether the structured reflective writing and the structured feedback affected the confidence level of the nurse anesthetist students more than the normal descriptive reflective writing and the general feedback.

The purpose of this research was to examine the confidence level after the nurse anesthetist students went through the structured reflective writing and the structured feedback learning method.

Therefore, the hypothesis was that the structured reflective writing and the structured feedback improved the level of confidence more than the normal descriptive reflective writing and the general feedback.

## 3. METHODS

### 3.1 Subject Population

This research study received the approval from the IRB Committee of Siriraj Hospital. The subjects were volunteers who participated in the NAS training program at Siriraj Hospital during the academic year of 2017 (October 2017- September 2018). All of them were the matched-subjects randomly assigned according to gender, age, hospital, and critical experience into one of the two study groups: 1) non-structured reflective writing (NSRW) and general feedback group, and 2) structured reflective writing (SRW) and structured feedback group. The sample size calculation was based on the score of mean and SD from the previous study of New General Self-Efficacy Scale.<sup>27</sup> The calculated statistics in this study yielded a total sample size of 36 subjects. After the completed enrollment, there were 36 NAS volunteering to participate in this study.

### 3.2 Research Design

All participants completed the tests to assess their 1<sup>st</sup> demographic data and the confidence level before the workshop of general anesthesia in emergency obstetric patients. The workshop addressed 4 scenarios: 1) Parturient

with placenta previa, 2) Fetal distress, 3) Severe preeclampsia with HELLP syndrome, and 4) Retained placenta.

After the workshop, all participants received the reflective writing form to follow on their group patterns. Then, all participants received the 2<sup>nd</sup> confidence test after the reflective writing of the workshop. They obtained feedback in two days for their group patterns. The first expert applied the structured feedback with the 4 levels of framework suggested by Hattie & Timperley to the SRW group while the second expert used the general feedback with the real contents from the report of the NSRW group.

The participants completed the 2<sup>nd</sup> and the 3<sup>rd</sup> reflective writing after the 1<sup>st</sup> and 2<sup>nd</sup> collected data of general anesthesia in emergency obstetric patients according to real situations. They received feedback in two days to follow their group patterns after the researcher got the reflective writing reports. After the 3<sup>rd</sup> reflective writing and feedback, all participants obtained the 3<sup>rd</sup> confidence test for last data collection. Four participants dropped out in the 2<sup>nd</sup> and the 3<sup>rd</sup> follow-up of the two groups. The reasons for declining the follow-up was their unavailability.

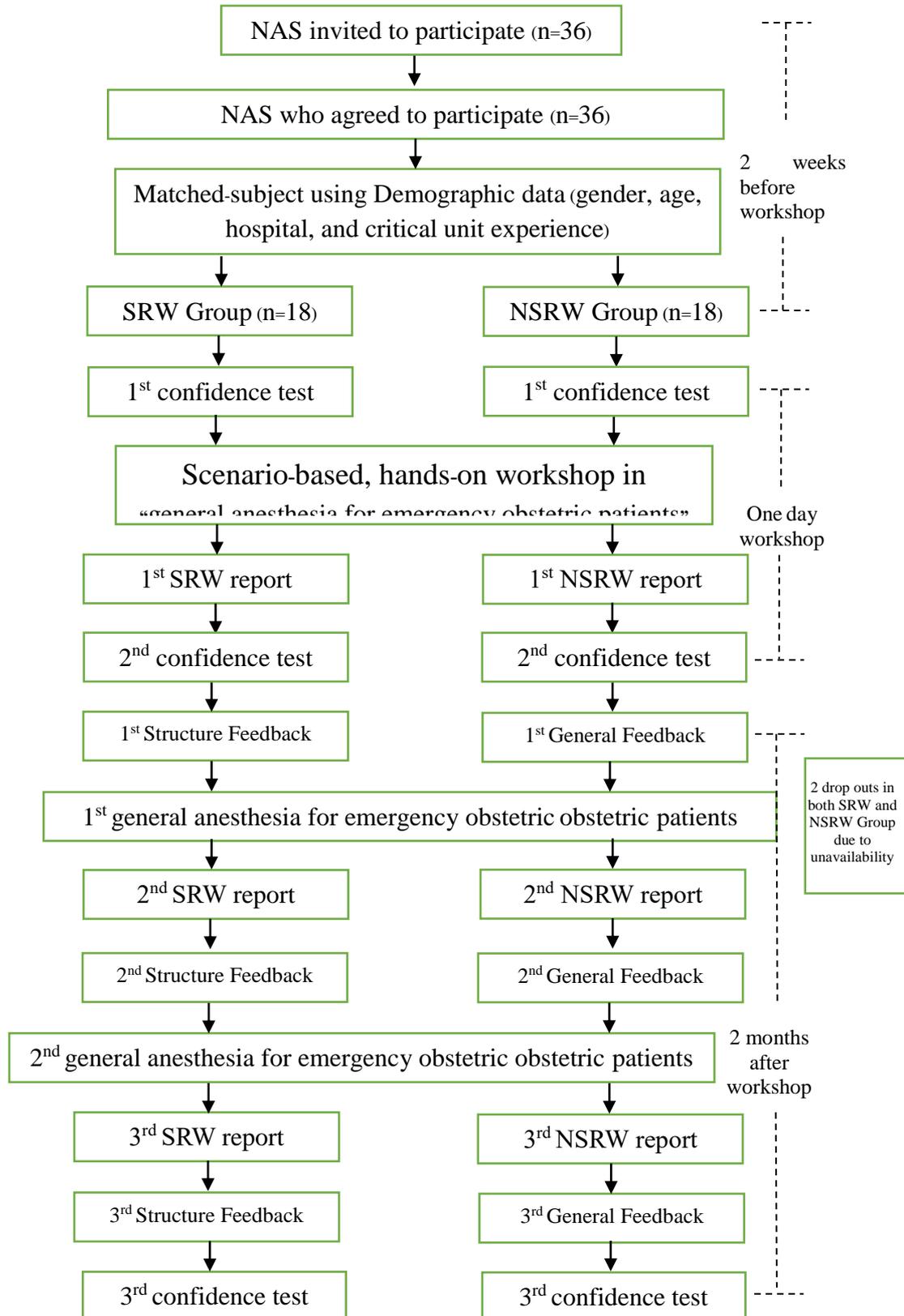


Figure 2 Overall research procedure

### 3.3 Studied instruments

#### 3.3.1 The test of confidence level

There were two parts of test for the confidence level, including:

Part 1: Demographical characteristics

Part 2: Confidence test (applied from the confidence level of general anesthesia of emergency obstetric patients in 2011)<sup>5</sup>The test had 10 questions with 5-level Likert Scale in: Procedures (3 questions), Management processes (3 questions), Critical thinking (3 questions), and Satisfaction (1 question). The validation of the original version was the confidence level with a high internal consistency of the Cronbach's alpha = 0.813.

#### 3.3.2 The reflective writing reports

It comprised the pattern of each assigned group. Two experts in general anesthesia for emergency obstetric patients verified the translated contents of those questions from English to Thai. The SRW reports contained 8 opened-end questions according to the framework suggested by Gibbs. Whereas, the NSRW reports contained the opened-end questions that led to general reflection.

#### 3.3.3 Feedback guide

It was for teachers to provide feedback to students with the pattern of each assigned group (the general feedback and the structured feedback). Two experts in general anesthesia for emergency obstetric patients verified the translated contents of the question from English to Thai. The structured feedback guide was in accordance with the 4-level framework by Hattie & Timperley. Meanwhile, the general feedback guide consisted of real contents from the reflective reports.

### 3.4 Data analysis

#### 3.4.1 Descriptive statistic data

Descriptive statistic data included gender, age, hospital, and critical unit experience. The use of IBM SPSS, version 18 (SPSS Inc, Chicago, Illinois) was for data analysis as mean, frequency, and standard deviation.

#### 3.4.2 The confidence level

The confidence level scores consisted of the 5-level Likert Scale calculated by One-way ANOVA, with the repeated-measure of the 3-time analysis. The applying of paired t-test was to identify a significant difference in performance within the groups. While, the use of independent sample t-test was for comparing the changing scores between both groups. For all analyses,

the program SPSS version 18.0 (SPSS Inc, Chicago, Illinois) was at a significance set of .05.

#### 3.4.3 Reflective writing reports

There were 3 times of reflective writing reports for each participant, with the verification of contents for validity. The 2 researchers independently reviewed each report to identify the broad ideas for the meanings of phrases or statements in the students' reflective writing reports. The closely identified coding was based on different irrelevant descriptions by Kember & et al. The result of reflective thinking development demonstrated the frequency of keywords every time with comparison between the groups, not an individual sample. The researcher designed keywords to identify linguistic features and textual moves commonly associated with the depth of the 4 levels.

## 4. RESULTS

### 4.1 Validity and reliability of instruments

#### 4.1.1 The confidence test

The internal consistency of the confidence test in this study yielded the Cronbach's alpha = .689.

#### 4.1.2 The reflective questions of testing

The use of Index of Item-Objective Congruence was for the verification of content validity. One expert evaluated each item with a rating of +1, 0, and -1. Whilst, five experts in general anesthesia of emergency obstetric patients verified the test for training and development. The SRW contained 8 questions and one question in the NSRW. The IOC for each question was 0.6-1.0. Two experts were the expertise nurses in anesthetics with experience on feedback.

### 4.2 Demographic characteristic data

Most of the subjects (86.1%) were female, aged 25-30 years (69.4%). The mean age was 28.2 ± 4.67 years. The most setting of hospital (94.4%) was the work with anesthesiologists. About 63.9% of them had their experience in critical unit of less than 2 years. There were no significant group differences based on gender, age, setting of hospital, and experience in critical unit.

**Table 1. Demographic data of characteristic of sample**

		SRW (N=18)	NSRW (N=18)	P- value
Gender	Male	3(16.7%)	2(11.1%)	.630
	Female	15(83.3%)	16(88.9%)	
Age	25-30	12(66.7%)	13(72.2%)	

31-35	6(33.3%)	5(27.8%)	.717
Setting of hospital			
With	17(94.4%)	17(94.4%)	
anesthesiologists			
Without	1(5.6%)	1(5.6%)	1.000
anesthesiologists			
Experience in critical unit			
<2 years	12(66.7%)	11(61.1%)	
2-5 years	4(22.2%)	4(22.2%)	
>5 years	2(11.1%)	3(16.7%)	.651

Significant difference was set at the level of P<0.05.

### 4.3 The confidence test

The mean and SD of the 1<sup>st</sup> confidence level in the SRW and the NSRW groups were 3.36 ± .41 and 3.27 ± .46, respectively. The 2<sup>nd</sup> confidence level was 3.46 ± .24 in the SRW group and 3.40 ± .23 in the NSRW group. The 3<sup>rd</sup> confidence level was 3.79 ± .18 in the SRW group and 3.83 ± .20 in the NSRW group. For the compared, there was no difference between the groups. Also, the scores of the 2<sup>nd</sup> and the 3<sup>rd</sup> confidence test were not significantly different from the 1<sup>st</sup> confidence test between the groups.

**Table 2. The pretest and posttest score**

	1 <sup>st</sup> reflection		2 <sup>nd</sup> reflection		3 <sup>rd</sup> reflection	
	SRW (n=18)	NSRW (n=18)	SRW (n=16)	NSRW (n=16)	SRW (n=16)	NSRW (n=16)
<b>Habitual action</b>	18 (100%)	18 (100%)	16 (100%)	16 (100%)	16 (100%)	16 (100%)
<b>Understanding</b>	17 (94.4%)	15 (83.3%)	16 (100%)	12 (75.0%)	16 (100%)	11 (68.8%)
<b>Reflection</b>	18 (100%)	2 (11.1%)	16 (100%)	2 (12.5%)	16 (100%)	1 (6.35%)
<b>Critical reflection</b>	18 (100%)	0 (0%)	13 (81.3)	0 (0%)	14 (87.5%)	0 (0%)

Significant difference was set at the level of p < .05, SR indicates structure reflective writing; NSR indicates non-structure reflective writing

### 4.4 Level of reflection

The analysis of reflective reports was 3 times following the contents of reflection based on the four levels of written reflection by Kember & et al as follows: 1) Habitual action, 2) Understanding, 3) Reflection, and 4) Critical reflection.

**Table 3. Frequency of reflective writing**

Time	SR group Mean±SD	NSR group Mean±SD	p- value
Preworkshop:	3.36 ± .41	3.27 ± .46	.573
The confidence levels before intervention			
Postworkshop1:	3.46 ± .24	3.40 ± .23	.517
The 2 <sup>nd</sup> confidence levels			
Postwoekshop2:	3.79 ± .18	3.83 ± .20	.507
The 3 <sup>rd</sup> confidence levels			

Out of the 108 distributed reflective writing reports, there were 100 returned reports with the response rate of 92.6%. When comparing the percentage, the level of the habitual actions and understanding in the SRW group showed no difference from the NSRW group. The level of reflection in the written structured group demonstrated more frequency of students than the NSRW group. Only the SRW group could engage in the critical reflection.

### 4.5 The words of confidence of reflective note

The level of reflection in written code demonstrated the reflection abilities. The process was based on the protocol of Kember et al following the theory and deduction in the discussed contents of reflective notes. The NSRW reports revealed various contents while the focus of the SRW reports was in the question guide. There were sub-themes in the reflective reports of the NSRW group, but the overall pictures were the same for the SRW group.

#### 4.5.1 Non-structure reflective writing group

The question provided to the NSRW group was: “What did you learn from the situations in the anesthesia for emergency obstetric patients?”

The content analysis of the NSRW group showed that the students engaged in the habitual actions, understanding, and reflection. All students engaged in the habitual actions. About 70% engaged in the understanding. Less than 10% engaged in the reflection. No participants engaged in the critical reflection.

The examples of reflective writing contents in the NSRW group were:

Habitual actions level

“...I have learnt the GA for emergency obstetric patients that addressed the anesthesia management of parturient with placenta previa...”

Understanding level

“...This situation required to prepare many drugs and equipment before starting operation, such as intra-venous line and fluid, vasopressor drug, and difficult airway tools...”

Reflection level

“...Before starting general anesthesia in the emergency obstetric patients, I had to do the pre-oxygenation to increase FRC. I must prepare LMA for unplan of difficult intubation because obstetric patients experienced the physiological change at their airway...”

#### 4.5.2 The Structured reflective writing group

There were eight questions provided to the students in the SRW group.

The content analysis of reflective writing in the SRW group showed that the questions guided the students to think in many aspects of situations. They not only could make description, but they also were able to define and assess high reflection in the written tasks.

The examples of reflective writing contents in the SRW group were:

Habitual actions level

“I have learnt the general anesthesia for emergency obstetric patients which addressed the anesthesia management of 4 scenarios”

Understanding level

“I would read rapid sequence induction and general anesthesia in OBG patient knowledge before working. Then, I would have good management in general anesthesia patients.”

Reflection level

“I would read more contents of hypotension to have more confidence and success in emergency obstetric patients and general anesthesia management”

Critical reflection level

“In the future, I would maintain only one case. I had to decide and manage the team to solve the immediately events. This was so that I could prepare drugs and instruments including the components before starting the case of requisites...”

#### 4.5.3 Sub-themes of reflective writing

Moreover, the answers consisted of eight questions and the content analysis showed two sub-themes that determined the critical thinking.

#### 4.5.3.1 The feeling in situation

Wording of the feeling in situation was the keyword reflected in all three times of the students' reflection. These reflective wordings revealed their perception of the thinking processes between the feelings, both positive and negative.

80% of the students wrote their good feelings in situation, such as gladness and proudness. One student wrote:

“I felt more confidence more than before”

Students wrote their bad feelings in situation, such as excitement, anxiety, and fear. One student wrote:

“It was very excited...I felt sad when I failed in the intubation process”

#### 4.5.3.2 Improvement of themselves

50% of the students wrote that they had more confidence and skills in themselves and improved their knowledge to manage the situation. One student wrote:

“I felt more confidence than before despite the intubation because I learned the preparation to prevent risks.”

Finally, the students of the NSRW question group engaged in the habitual actions, understanding, and reflection. While, those of the SRW question group engaged in the habitual actions, understanding, reflection, and critical reflection. Importantly, both groups involved in the two sub-themes with the critical thinking determined as the feeling in situation and self-improvement.

### 4.6 Feedback to participants

#### 4.6.1 Feedback to the non-structured reflective writing group

General feedback was for the control group. One of the experts provided the individual written feedback to participants in 3 days via email. Feedback typically commented on the students' insights to support their engagement. The general feedback consisted of real contents from the report of the NSRW.

The examples of reflective note and feedback to NSRW group were:

Reflective note

“Before starting general anesthesia in emergency obstetric patients, I had to do the pre-oxygenation to increase FRC. Moreover, I must prepare LMA for the non-planning of difficult intubation because

*obstetric patients experienced the physiological change at their airway”*

Feedback from the researcher

“That was excellent. You were aware of the situations in critical cases. In addition, the preparation of equipment was basic management in general anesthesia for emergency obstetric patients. Keep fighting.”

#### 4.6.2 Feedback to structured reflective writing group

The reports of the SRW group contained eight questions. The provision of feedback from the experts was in 3 days after receiving the reports. The guideline for feedback included the 4 levels of framework suggested by Hattie & Timperley to the SRW group.

- 1) Feedback about the task or product
- 2) Feedback about the processing of the task
- 3) Feedback about self-regulation
- 4) Feedback about an individual person

The examples of reflective note and feedback to SRW group were:

Reflective note

*“I should have my concentration in the task and prepare all important equipment.*

*Excited I should have knowledge.*

*I needed to read the rapid sequence of induction and had general anesthesia in OBG patients before working. Then, I would have good management in general anesthesia patients.*

*Failing and no confidence.*

*I could do faster and correct.*

*I should read the books before working.*

*More confidence for the next cases.”*

Feedback from researcher

“That’s so good for the planning. I agree with you that the attention for the equipment of difficult airways is most important. Moreover, you have a good forward thinking with the concern on your self-performance and knowledge. Reading books and situation awareness are the basic preparation before starting every case. In addition, you must try to calm down in emergencies when you encounter critical cases. Don’t forget to pay attention to the call for help and team-working.”

Analysis of feedback content

- 1) Feedback about the task or product

- I agree with you that the concern for the equipment of difficult airways is most important.

2) Feedback about the processing of the task

- Don’t forget to concern for the call for help and team working.

3) Feedback about self-regulation

- Reading the books and having awareness of situations are basic for preparation before starting every case.

- you have a good forward thinking with the concern on your self-performance and knowledge.

4) Feedback about an individual person

- That is good for planning.

- In addition, you must try to calm down in emergencies when you are confronted with critical cases.

## 5. DISCUSSIONS

### 5.1 Discussion of the results and hypothesis

This study aimed to explore the efficacy of the SRW and the structured feedback to increase the confidence level of the NAS more than the NSRW and the general feedback. Also, it would be essential to identify the effect of using the reflective writing and feedback many times to improve the confidence level of the NAS. However, the scores on the 2<sup>nd</sup> and the 3<sup>rd</sup> confidence test were not significantly different from the 1<sup>st</sup> confidence test between the groups.

Moreover, the students’ reflective reports could define the level of written reflection. In the meantime, the questions in the SRW could guide the students to think in many aspects, such as feeling, future planning, and weak points deeper than the NSRW.

#### 5.1.1 Discussion of findings from the confidence scores

The question in this study aimed to examine the efficacy of the SRW with structured feedback and the NSRW with general feedback. The result of this study showed that the confidence score of the SRW and structured feedback group was not significantly different from the NSRW and general feedback group. In this study, there was a little difference between the groups in the confidence level. There were some reasons to explain the findings in this study:

First, the sample size in this study was small with no adequate power to detect the effect of the intervention.

Second, the data collection on the confidence level should be 3 times for 2 weeks-3 months with the completed results, not at the same time.

Third, with the 3-time confidence test in this study, the students obtained different experience in the workplace training which depended on their schedule.

Fourth, each student had time for the self-directed learning with the contents of general anesthesia in emergency obstetric patients.

### 5.1.2 Discussion of findings from reflective note

This part of the study evaluated the level of reflective writing report and the confidence level. To conclude, the SRW questions could guide the students to succeed in the depth of reflection more than the NSRW questions.

There were some reasons to support the students' confidence. These reasons might explain different experience in workplace training. The training schedule of each student limited to different workplace. The experience of management skills in general anesthesia in emergency obstetric impacted each student for the reflective writing.

## 5.2 Discussion and literature review

The results were compatible with the findings in the previous 2 studies of Timmins et al<sup>37, 38</sup>, which focused on the nurses' reflection skills among students. This study compared and explored the reflective reports and the coded theme following the reflection model of Gibbs, which presented that the structured reflection improved the writing skills and also increased the higher level of overall performance. The mean score for the students' assignments using the model with structured scores was higher than those who did not utilize the structured model.

However, these results as well consisted the findings from Sanders et al<sup>27</sup>, which compared the structured and the non-structured writing in contrast with the reflections. The results of Sanders et al indicated that the students who wrote the structured reflections significantly increased their personal growth and self-efficacy. Whereas, those using the non-structured reflections showed no changes. Moreover, the study results of Sanders et al supported the findings of Aronson et al<sup>24</sup>, which demonstrated the structure of critical reflection with feedback guideline to improve effective reflection and confidence interval, compared to the non-reflection guideline and feedback.

There were some reasons to explain the findings in this study, with no consistence to those in Sanders et al and Aronson et al. First, the sample size in this study

was small with no adequate power to detect the effect of the intervention. The investigation of Sanders et al and Aronson et al was based on a larger group of students to draw the more precise conclusion about the effectiveness of both teaching methods. It was helpful to determine the probability of detecting an effect of a given size with a given level of confidence, under the sample size constraints. Second, the amount of collecting time in the studies of Sanders et al and Aronson et al were shorter than this study. Third, following the 3-time confidence test in this study, students obtained different experience in workplace training, which depended on their schedule. In addition, each student had time for self-directed learning, which could affect the confidence level of students.

## 5.2 Implications

The overall findings of this study yielded general implications for research and practice. The NSRW was easy to conduct and required less resources. Given the time and resources, the SRW could be essential and the NSRW may be a good alternative.

Further research should calculate the sample size well. A variety and number of sample size could affect the examination and group comparison. Thus, researchers who are interested in the use of reflection to enhance the confidence level require to have the teaching methods with various aspects of reflection.

## 5.4 Limitations

### 5.4.1 Study samples

This study limited the small sample size of 18 students in each group. Second, the time of reflection in this study was with different intervals after the intervention.

### 5.4.2 Instrumentation

There were no existing instruments with the translated reflection in Thai version.

## 5.5 Conclusion

There was no significant difference between the use of the structured reflection writing with structured feedback and the non-structured reflection writing with general feedback for the improvement of the confidence level among the nurse anesthetist students.

Educator should include the structured reflection writing with structured feedback to could guide the students to succeed in the depth of reflection.

## 6. ACKNOWLEDGEMENTS

The authors would like to thank Anesthesiology Department of Siriraj Hospital and Mahidol University for their support.

Conflict of interest: None

Ethical approval: This study was approved by the ethical committee of Mahidol University.

## 7. REFERENCES

- [1] Elisha S, Rutledge DN. Clinical education experiences: perceptions of student registered nurse anesthetists. *AANA J.* 2011;79(4 Suppl):S35-42.
- [2] Phillips JK. Exploring student nurse anesthetist stressors and coping using grounded theory methodology. *AANA J.* 2010; 78(6):474-83.
- [3] Joy LHM. Epidural Analgesia for Labor and Delivery. 2010; 362(16):1503-10.
- [4] Hughes C, Aderson G, Patterson D, O'Prey M. Introducing an obstetric emergency training strategy into a simulated environment. *B J Mid.* 2014; 22(3):201-8.
- [5] พัชรียา นวัตกรรมมินทร์, วรณา ศรีโรจนกุล. การประเมินการสอนปฏิบัติการระดับความรู้สึกระบบทั้งตัวในผู้ป่วยสูติกรรมแบบฉุกเฉินแก่นักศึกษาวิสัญญูพยาบาล. *Thai J Anes.* 2555; 38(3):207-18.
- [6] Koh YH, Wong ML, Lee JJ. Medical students' reflective writing about a task-based learning experience on public health communication. *Med Teach.* 2014;36(2):121-9.
- [7] Branch WT, Paranjape A. Feedback and reflection teaching methods for clinical settings. *Acad Med.* 2002; 77(12):1185-9.
- [8] Dennick R. Constructivism reflections on twenty five years teaching the constructivist approach in medical education. *Int J Med Educ.* 2016;7:200-5.
- [9] Virginia R. Constructivist Pedagogy. *Teach Col Rec.* 2003;105(9):1623-40.
- [10] Nalliah S, Idris N. Applying the learning theories to medical education: A commentary. *IeJSME.* 2014;8(1):50-6.
- [11] Koponen J, Pyorala E, Isotalus P. Comparing three experiential learning methods and their effect on medical students' attitudes to learning communication skills. *Med Teach.* 2012;34(3):e198-207.
- [12] Kolb DA. *Experiential education Experience as the source of learning and development.* New Jersey: 2014
- [13] Liu K. Critical reflection as a framework for transformative learning in teacher education. *Educational Review.* 2013;67(2):135-57.
- [14] Hurley MH, Hurley D. Enhancing Critical Thinking Skills Among Authoritarian Students. *High Educ.* 2013;25(2):248-62.
- [15] Bell A, Kelton J, McDonagh N, Mladenovic R, Morrison K. A critical evaluation of the usefulness of a coding scheme to categorise levels of reflective thinking. *High Educ.* 2011;36(7):797-815.
- [16] Sandars J. The use of reflection in medical education: AMEE Guide No. 44. *Med Teach.* 2009;31(8):685-95.
- [17] Winchester TM, Winchester MK. A longitudinal investigation of the impact of faculty reflective practices on students' evaluations of teaching. *Educ Tech.* 2014;45(1):112-24.
- [18] Department of Agriculture's National Institute of Food & Agriculture ; The Ohio State University. *Communication : Personal Reflection.: The Ohio State University;* 2014.
- [19] Aronson L, Niehaus B, Lindow J, Robertson PA, O'Sullivan PS. Development and pilot testing of a reflective learning guide for medical education. *Med Teach.* 2011;33(10):e515-21.
- [20] Stevens FCJ, Goulbourne SJD. Globalization and the modernization of medical education. *Med Teach.* 2012;34(10):e684-9.
- [21] Fischer MA, Haley HL, Saarinen CL, Chretien KC. Comparison of blogged and written reflections in two medicine clerkships. *Med Educ.* 2011;45(2):166-75.
- [22] Caeiro C, Cruz EB, Pereira CM. Arts, literature and reflective writing as educational strategies to promote narrative reasoning capabilities among physiotherapy students. *Physiother Theo Pract.* 2014;30(8):572-80.
- [23] Kennison M. Developing reflective writing as Effective Pedagogy. *Nurs Educ Pers.* 2014;33(5):7.
- [24] Aronson L, Niehaus B, Hill-Sakurai L, Lai C, O'Sullivan PS. A comparison of two methods of teaching reflective ability in Year 3 medical students. *Med Educ.* 2012;46(8):807-14.
- [25] Cochran GL, Brookes DT, Kramer LH. A framework for assessing learning assistants' reflective writing assignments. *AIP Conference Proceedings;* 2013; Florida. USA. Miami; 2013.
- [26] Kember D, McKay J, Sinclair K, Wong FKY. A four category scheme for coding and assessing the level of reflection in written work. *High Educ.* 2008;33(4):369-79.
- [27] Sanders MJ, Van Oss T, McGeary S. Analyzing Reflections in Service Learning to Promote

- Personal Growth and Community Self-Efficacy. *J Experiential Educ.* 2015;39(1):73-88.
- [28] Stark P, Roberts C, Newble D, Bax N. Discovering professionalism through guided reflection. *Med Teach.* 2006;28(1):e25-31.
- [29] Corrigan R, Hardham G. Use of technology to enhance student self evaluation and the value of feedback on teaching. *Ther Rehab.* 2011; 18(10):579-91.
- [30] Algiraigri AH. Ten tips for receiving feedback effectively in clinical practice. *Med Educ Online.* 2014;19(25141):8.
- [31] Overeem K, Wollersheim H, Driessen E, Lombarts K, van de Ven G, Grol R, et al. Doctors' perceptions of why 360-degree feedback does (not) work: a qualitative study. *Med Educ.* 2009;43(9):874-82.
- [32] Hattie J, Timperley H. The Power of Feedback. *Educ Res.* 2016;77(1):81-112.
- [33] Quinton S, Smallbone T. Feeding forward: using feedback to promote student reflection and learning – a teaching model. *Educ Teach Int.* 2010;47(1):125-35.
- [34] Kneebone R, Nestel D. Learning Clinical skill the place of simulation and feedback. *Cli Teach.* 2005;2(2):86-90.
- [35] Jones AH. Literature and Medicine A Problem of Assessment. *Acad Med.* 2006;81(10):128-37.
- [36] Timmins F, Murphy M, Howe R, Dennehy C. “I Hate Gibb's Reflective Cycle 1998” (Facebook©2009): Registered Nurses' Experiences of Supporting Nursing Students' Reflective Practice in the Context of Student's Public Commentary. *Procedia – Soci Behav Sci.* 2013;93:1371-5.
- [37] Timmins F, Neill MF. Reflections on Reflection: An Audit of Students' use of Structured Models Within Specific Assessments. *Procedia - Soci Behav Sci.* 2013;93:1368-70.