

## Original Research Article

# THE INFLUENCE OF PROBLEM-BASED LEARNING METHOD ON THE LEOPOLD MANEUVER CLINICAL SKILL IN DIPLOMA MIDWIFERY STUDENTS

Ani T Prianti <sup>1\*</sup>, Nurhaedar Jafar <sup>2</sup>, Mardiana Ahmad <sup>3</sup>

<sup>1</sup> Megarezky University, Makassar

<sup>2</sup> Nutrition Science Study Program, Hasanuddin University, Makassar, Indonesia

<sup>3</sup> Master of Midwifery Study Program, Hasanudding University, Makassar, Indonesia

### \*Correspondence:

**Ani T Prianti**

Megarezky University, Makassar  
Antang Raya Road, Antang, Manggala Sub-District, Makassar City, South Sulawesi, Indonesia - 90234  
Email: [anhyanhy401@gmail.com](mailto:anhyanhy401@gmail.com)

### Article Info:

Received: March 29, 2022

Revised: October 25, 2022

Accepted: December 12, 2022

### DOI:

<https://doi.org/10.36720/nhjk.v11i2.386>

### Abstract

**Background:** In dealing with the current condition of the Covid-19 pandemic, the education system finds the alternative and changes the regular learning to an online system. This online system depends on vital aspects such as well-structured, interactive, and substantive programs. Consequently, educators are challenged to be more frequently innovative and active in assessing and evaluating learning needs. Implementing a proper learning method helps to encourage students' willingness to learn since they are the core of the learning process. Therefore, this research considered Problem-based Learning as a suitable learning method to implement and improve clinical skills. By learning from a problem, students are indirectly instructed to learn how to collect and integrate new knowledge.

**Objectives:** This study focuses on determining the implementation of Problem-Based Learning methods on the Leopold maneuver antenatal midwifery care subject in the diploma midwifery students.

**Methods:** This study uses a pre-experimental design with a one group pretest-posttest design. The samples in this study are 30 students from Megarezky University. Data are analyzed by univariate and bivariate with chi-square test. This study uses a questionnaire to measure students' interest and motivation in participating in learning in antenatal care courses, and to measure skills in performing the Leopold maneuver using a standardized checklist from the Antenatal Care Module of the Ministry of Health. This research is conducted within two months (December to January 2022).

**Results:** The result reveals that the Problem-Based Learning Method (PBL) effectively increases the score of students' clinical skills with a  $p$ -value:  $0.000 < 0.05$ .

**Conclusion:** Problem-Based Learning Method (PBL) effectively improves the clinical skills of Leopold maneuver Antenatal care.

**Keywords:** *Problem-Based Learning, Clinical Skills, Antenatal Midwifery Care.*

## INTRODUCTION

Since the coronavirus outbreak (Covid - 19), countless changes have occurred globally; one of them is academic life, particularly the teaching-learning process. The modification of teaching-learning process activities can be seen from implementing an emergency regulation where students are forced to learn from home or experience distance learning (Tyas, 2017).

Online learning turns out to be the most proper alternative to education nowadays. It makes the university provides online training for various disciplines (Alibak et al., 2019) so that teacher can provide well-structured, interactive, and substantive learning programs. They are also expected to assess and evaluate their learning needs frequently (Alibak et al., 2019).

To achieve these learning objectives, it is necessary to have student motivation. A proper method will enhance students' enthusiasm and challenge them to be more active and critical under the constructivism view, change the flow from teacher-centered to student-centered, adjust the content or material, and how to present it (Itatani et al., 2017).

Applying constructivist principles and values has developed various approaches, strategies, or learning models. Pedagogical experts have believed that problem-based learning (PBL) aligns with the foundation and paradigm of constructivism learning. Problem-based learning has been widely used as a model, strategy, or approach in teaching or university lectures (Itatani et al., 2017).

Theoretically, a proper learning method enhances student clinical skills and achievement. Research from (Sabrina & Sulistyarningsih, 2013) elaborates that the lack of skills can be indicated by the data of the Osca exam on students in the third semester. From 47 students who were tested, there are only 12 students (25.5%) passed, while the remaining 35 students (74.5%) did not comply with the implementation of the mixed learning method (Sabrina & Sulistyarningsih, 2013).

Siahaan (2017) showed that the clinical learning method used by the clinical supervisor

is dominantly applying the problem-solving method (69.6%) and the bedside teaching method (52.2%). The highest obstacle in implementing a clinical learning method is the situation (43.5%). From the percentage, it proves that the problem-based learning method is more widely used in clinical learning (Siahaan, 2017).

An inappropriate method used in the teaching-learning process can reduce the ability and skills of students. Therefore, the problem-based learning method is considered an alternative learning method that can substitute the weakness of current learning methods. This method is also considered capable of stimulating critical thinking skills because students are actively learning how to solve problems scientifically (Sanjaya, 2015).

Essentially, students need to have a related case study with the materials taught to them before their clinic guidance. It helps them comprehend, analyze, and diagnose the case. Students can further apply and practice it in laboratory learning sessions to enhance their clinical skills (Tchakarov, 2005).

Lab learning (Lab skill) is a crucial part of a complex educational process, and it should be integrated into all educational programs that refer to the curriculum. In addition, lab learning (Lab skill) is a method or a form of learning which focuses on learning and training the psychomotor abilities (skills), knowledge, and affective (attitude) by using laboratory facilities (Sumarni et al., 2017). These three skills (psychomotor, knowledge, and affective) will help students develop competence in applying knowledge, skills, attitudes, and values in clinical situations. After pointing out the crucial aspects above, researchers are interested in researching the Application of Problem-Based Learning Methods, especially in the Antenatal Midwifery Care subject (Yusri, 2018).

## METHODS

### *Study Design*

This study used a pre-Experimental design method with a one group pre-posttest design.

### Setting

This study was conducted within two months (December 2021 to January 2021) in Megarezky University, Makassar.

### Research Subject

The population in this study is the third-year midwifery students who enrolled in the Antenatal Midwifery Care subject. Further, this study takes 30 students as the sample from Megarezky University, Makassar.

### Instruments

A clinical skill measurement was carried out using a Leopold skill checklist taken from the Ministry of Health's antenatal module.

### Interventions

Respondents received different training/learning methods. In this design, observations are conducted two times before and after the treatment. intervention group. the intervention group was given the Problem based learning method after which laboratory guidance was carried out to measure students' clinical skills.

### Data Analysis

The intervention in this study was tested by pretest and posttest where data were analyzed univariate and bivariate using chi-square test.

### Ethical Consideration

Before this research was conducted, it had obtained ethical approval from Hasanuddin University with No: 131221092046.

## RESULTS

### Characteristic of Respondents

Table 1 showed the characteristics of respondents in the PBL learning method. The group of respondents aged 19 years old consisted of 26 people, and 20 years old consisted of four people.

**Table 1.** Characteristics of Respondents by Age.

Characteristics	Characteristics of Respondents			
	Age 19		Age 20	
	N	%	N (15)	%
PBL method	26	86.7	4	13.3%
<b>Total</b>	<b>26</b>		<b>4</b>	<b>100</b>

\*Frequency-Distribution Test

*Determinant of the Influence of Problem-Based Learning on the Leopold Maneuver Clinical Skill using Chi-Square Test*

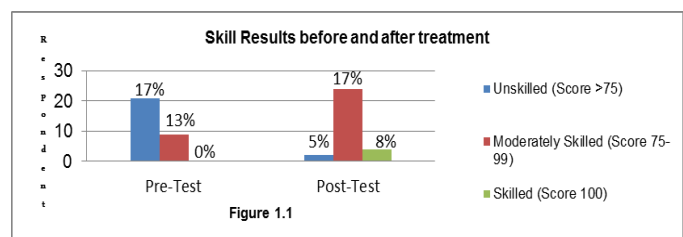
**Table 2.** Skill Result Analysis Before and After PBL Method Intervention.

Data Type	N	%	Negative Rank	Positive Rank	Ties	P value
PBL method Pretest	30	100.0	1	19	10	0.000
Posttest						

\*Wilcoxon test

Table 2 showed the effect of the PBL method on student skills. It obtains that there are 19 respondents with improved scores, ten respondents with fixed scores (remain the same), and one respondent with a lower score. Based on the statistical test results, the  $p$ -value of the PBL method is  $0.000 < 0.05$ .

Besides, the treatment of giving intervention of PBL method may lead to different result categories. In the initial assessment (Pretest), students who obtain unskilled results are 17 (56.7%), moderately skilled 13 (43.3%), and skilled (0%). After receiving the intervention, the unskilled students decrease to 5 (16.7%), moderately skilled increase to 17 (56.7%), and skilled becomes 8 (26.7%), as portrayed in figure.



**Figure 1.** Skill Result Before and After Treatment.

In general, it can be seen that the implementation of the PBL method can assist students in obtaining better skill scores.

## DISCUSSION

This research is conducted on two different institutions with a total of samples are 30 students. The samples had taken where 15 students from Megarezky University or further are classified as group Megarezky (odd group) will be treated with the problem-based learning method, and the other 15 students will be the even group. The study has two measurements that conduct before and after treatment. It also allows students to practice antenatal obstetric care with the Leopold Maneuver method directly to patients.

The distribution of respondent characteristics based on age shows that most of the respondents in the PBL method groups are at the age of 19 years old with a percentage of the PBL method (26 = 86.7%). College or university students have mainly been classified as adults since their ages range from 18 to 25 years old and have responsibilities toward their lives. During students' development, they will encounter certain stages which need to be fulfilled so that it will not hinder their life enhancement.

Growing as an adult, students in higher education should deal with individual functional aspects that later will change their lives, such as physical, psychological, and social. The higher the level of education, the more responsibilities that need to be carried out (Hulukati & Djibran, 2018).

The results of the Wilcoxon test on the PBL method implementation show the significant improvement in Leopold's Maneuver Antenatal Midwifery Care skills by comparing the scores before and after treatment, with a significance of P-value  $0.000 < 0.05$ . Based on the comparison of statistical tests before and after the intervention, 19 students are improved, one student is not, and ten have fixed scores (the scores remain the same).

PBL method is problem-based learning that involves students being more active and critical to solving a problem. (Widadi & Pramudita, 2018).

The problem-based learning approach is practical because PBL allows students to carry out discussions with groups. Giving space for discussion makes students contribute more to the learning process and deal with their problems. Through the PBL method, the lecturer can be more focused to be a facilitator and motivator in the problem-solving process, as proved by the significance level  $P=0.000 < 0.05$  (Dessy Lutfiasari, 2016)

In reference to Fitri's research, PBL treatment gives significant influence on each category such as students' learning motivation  $p = 0.000$ , learning readiness  $p = 0.001$ , and learning outcomes  $p = 0.001$ . Thus, the problem-based learning method can be considered effective (Fitri et al., 2018).

Problem-based learning method utilized problems and students' needs to find the information related to the problems they found (inquiry) and solve it (Taufik et al., 2010). Besides, problem-based technology and script-based learning (PSBL) can stimulate student enthusiasm to increase pre-operative readiness and intra-operative knowledge, and clinical problem-solving abilities (Ahmar et al., 2020).

Those theories and findings are aligned with (Joseph et al., 2015) research analyzes 77 students involved in the PBL brainstorming session. The findings shows that students' academic achievement is  $P < 0.001$ , and success rate  $P = 0.05$ . Therefore, it can be concluded that students who are treated with PBL get higher scores than students who are not.

A learning model (PBL) involving students in solving real/direct problems can improve their critical thinking skills to identify, analyze, and solve problems (Mulyani, 2020).

Notwithstanding the score enhancement on initial analysis, the result is only stuck in a moderate level with a score: 75-99.  $n = 5$  (16.7%) students are in the unskilled category, and  $n = 10$  students scored in the fixed category.

The result portrays several factors: lecturers, as the mediator of the teaching-learning process, did not all out in conveying the material. Further, students who are not confident in their abilities will find it difficult to solve the problem and are reluctant to try again. Lastly, the learning process needs to be supported by books as case study reference materials (Tyas, 2017). These factors are also in line with other research that shows the implementation of the PBL method affects students' written test scores because the PBL method is related to students' SDL abilities and tutor performance (Yusri, 2018).

Through the findings and complex analysis, it is legal to write that this method can be effectively used to improve student skills, especially in Leopold Maneuver Antenatal Midwifery Care. However, it is necessary to pay attention to the appropriate learning hours.

## CONCLUSION

Based on the analysis results on skills in Leopold Maneuver Antenatal Care using the Problem Based Learning method for Diploma of Midwifery students, it deduces that the Problem Based Learning method significantly affects the Leopold Maneuver skills in Antenatal Midwifery Care subject. The enhancement is proved by  $p$ -value = 0.000, and Problem Based Learning method has a mean score of 35.67.

## SUGGESTIONS

Problem Based Learning can be compared with other learning methods and can be applied in the learning process in the laboratory to improve student skills. And also, not only in learning related to Leopold Maneuvers but for all the skills available in antenatal midwifery education courses that must be mastered by midwifery students.

For researchers can further develop this method by increasing the number of respondents, research time and also adding other variables so that in advanced courses after antenatal Midwifery Care students can reach a value of 100 with the skilled category.

For institutions to conduct a review of learning time in the laboratory.

## ACKNOWLEDGMENT

Researchers sincerely appreciate the supervising lecturers, examiners, and respondents willingly involved in this research. Also, it is grateful to cooperate with the publication unit of Hasanuddin University, Makassar, and related parties that support the sustainability of this research.

## DECLARATION OF CONFLICTING INTEREST

The researcher stated that there was no conflict of interest in conducting this research.

## FUNDING

This research funding uses private funds and does not get help from other parties.

## AUTHOR CONTRIBUTION

**Ani T Prianti:** Designed the study, assisting in interpretation of research results, directing deeper discussions related to research results, compiling manuscripts.

**Nurhaedar Jafar:** Co-researcher in this study who is in charge of preparing the research questionnaire.

**Mardiana Ahmad:** Co-researcher in this study who is in charge of preparing the research questionnaire.

## ORCID

**Ani T Prianti**

<https://orcid.org/0000-0003-1308-6942>

**Nurhaedar Jafar**

<https://orcid.org/0000-0002-0798-0457>

**Mardiana Ahmad**

<https://orcid.org/0000-0003-1578-0831>

## REFERENCES

Ahmar, H., Budi, P., Ahmad, M., Mushawwir, A., & Khaidir, Z. (2020). Penerapan

- Model Pembelajaran Problem Based Learning: Literature Review. *Jurnal Keperawatan Muhammadiyah*, 4(3), 10–17. <http://journal.um-surabaya.ac.id/index.php/JKM>
- Alibak, M., Talebi, H., & Neshat-Doost, H.-T. (2019). Development and validation of a test anxiety. *Journal of Educators Online*, 16(2), 1–16. [https://www.thejeo.com/archive/2019\\_16\\_2~2/alibak\\_talebi\\_neshatdoost](https://www.thejeo.com/archive/2019_16_2~2/alibak_talebi_neshatdoost)
- Dessy Lutfiasari, D. K. P. (2016). PENGGUNAAN METODE PEMBELAJARAN PROBLEM BASED LEARNING TERHADAP KETRAMPILAN PENGISIAN PARTOGRAF PADA MAHASISWA SEMESTER III DI PRODI KEBIDANAN (D III) UNIVERSITAS KADIRI TAHUN 2016. *General Medicine*, 7(2), 3–6. <https://doi.org/10.24843/ljlc.2020.v09.i01.p07>
- Fitri, D. M., Pandi, S. P., & Pandi, S. P. (2018). Theeffect of Problem Based Learning Method Onmotivation , Preparation To Learn and Learning Achievement Pengaruh Metode Problem Based Learning Terhadap Motivasi , Kesiapan Dan Hasil Belajar. *Jurnal Pendidikan*, 1(Maret), 12–20.
- Hulukati, W., & Djibran, M. R. (2018). 1787- Article Text-7586-1-10-20180522. *Bikotetik*, 02(3), 73–80.
- Itatani, T., Nagata, K., Yanagihara, K., & Tabuchi, N. (2017). Content Analysis of Student Essays after Attending a Problem-Based Learning Course: Facilitating the Development of Critical Thinking and Communication Skills in Japanese Nursing Students. *Healthcare*, 5(3), 47. <https://doi.org/10.3390/healthcare5030047>
- Joseph, N., Narayanan, T., Bin Zakaria, S., Nair, A. V., Belayutham, L., Subramanian, A. M., & Gopakumar, K. G. (2015). Awareness, attitudes and practices of first aid among school teachers in Mangalore, South India. *Journal of Primary Health Care*, 7(4), 274–281. <https://doi.org/10.1071/HC15274>
- Mulyani, S. (2020). Penerapan Metode Pembelajaran Problem Based Learning Guna Meningkatkan Hasil Belajar IPA Di Masa Pandemi Covid 19. *Navigation Physics : Journal of Physics Education*, 2(2), 84–89. <https://doi.org/10.30998/npjpe.v2i2.489>
- Sabrina, M., & Sulistyaningsih. (2013). Faktor-Faktor Yang Mempengaruhi Kelulusan Ujian Osca Keterampilan Persalinan Kala Tiga Mahasiswa Diploma Iii Kebidanan Semester Iii Stikes 'Aisyiyah Yogyakarta 1. *STIKES 'Aisyiyah Yogyakarta*.
- Sanjaya, W. (2015). *Perencanaan dan Desain Sistem Pembelajaran*. Kencana Prenada Media Group. <https://ecampus.unusia.ac.id/repo/handle/123456789/8796?show=full>
- Siahaan, J. (2017). *Metode Pembelajaran Klinik dan Hambatannya pada Program Profesi Ners*. <http://repositori.usu.ac.id/handle/123456789/1513>
- Sumarni, R., Idjradinata, P. S., Husein, I. R., Husin, F., Madjid, T. H., & Sukandar, H. (2017). Pengaruh Implementasi Metode Problem Based Learningterhadap Hasil Belajar MateriKeluarga Berencana (Dalam Mata Kuliah Kesehatan Reproduksi dan KeluargaBerencana I pada Program Studi Kebidanan (D-III) STIKes Jenderal Achmad Yani Cimahi TA.2014/2015). *Jurnal Pendidikan Dan Pelayanan Kebidanan Indonesia*, 3(2), 23. <https://doi.org/10.24198/ijemc.v3i2.17>
- Taufik, M., Sukmadinata, N. S., Abdulhak, I., & Tumbelaka, B. Y. (2010). Desain Model Pembelajaran Untuk Meningkatkan Kemampuan Pemecahan Masalah Dalam Pembelajaran Ipa (Fisika) Sekolah Menengah Pertama Di Kota Bandung. *Berkala Fisika*, 13(2), 31–44.

- Tchakarov, S. (2005). Problem based learning. *General Medicine*, 7(2), 3–6. <https://doi.org/10.24843/ljlc.2020.v09.i01.p07>
- Tyas, R. (2017). Kesulitan Penerapan Problem Based Learning Dalam Pembelajaran Matematika. *Tecnoscienza*, 2(1), 43–52. <https://ejournal.kahuripan.ac.id/index.php/TECNOSCIENZA/article/view/26/20>
- Widadi, S. Y., & Pramudita, I. A. (2018). Gambaran Motivasi Belajar pada Siswa Pengguna Smartphone di SMP Negeri 4 Garut. *Jurnal Keperawatan Silampari*, 2(1), 203–216. <https://doi.org/10.31539/jks.v2i1.304>
- Yusri, A. Y. (2018). Pengaruh Model Pembelajaran Problem Based Learning Terhadap Kemampuan Pemecahan Masalah Matematika Siswa Kelas Vii Di Smp Negeri Pangkajene. *Mosharafa: Jurnal Pendidikan Matematika*, 7(1), 51–62. <https://doi.org/10.31980/mosharafa.v7i1.341>

**Cite this article as:** Prianti, A. T., Jafar, N., Ahmad. M. (2022). The influence of problem-based learning methods on the Leopold maneuver clinical skill in Diploma midwifery students. *Nurse and Health: Jurnal Keperawatan*, 11 (2), 287-293. <https://doi.org/10.36720/nhjk.v11i2.386>