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Self-reflection Levels in Learning among the Medical Students at Faculty of Medicine, Universitas Swadaya Gunung Jati, Cirebon, Indonesia

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ABSTRACT

Background: Self-reflection is one of the most important characteristics that students, especially medical students, need to have during their studies. With the challenges across medical doctor programs, students need to have adequate self-assessment skills.

Aims: This study aims to determine the level of self-reflection skills in students of the Faculty of Medicine, Universitas Swadaya Gunung Jati at the academic and professional stages.

Methods: This is a descriptive observation research with 418 respondents consisting of students at the academic and professional stages. This study used a reflection-in-learning questionnaire that has been adapted into Indonesian to assess the level of student self-reflection with the results are divided into six levels of indicators: "Null", "Minimal", "Restricted", "Partial", "Sufficient", and "Maximal".

Results: The results of this study indicate that the highest level of student self-reflection is in the "Sufficient" indicator (45%), followed by the "Maximal" indicator (34.2%), the "Partial" indicator (18.7%), the "Restricted" indicator (1.9%), the "Minimal" indicator (0.2%), and the "Null" indicator (0%).

Conclusion: This study concludes that the level of self-reflection skills in students of the Faculty of Medicine, Universitas Swadaya Gunung Jati, both at the academic and professional stage, is classified as a level of ability that is quite good.

Keywords: *Self-reflection, Learning reflection, Medical students*
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1. Introduction

Learning can become more meaningful when students connect their learning material with their experience in daily-life. Learning is more than just memorizing; students can construct knowledge through their experiences and provide opportunities to build knowledge and understanding of the learning material delivered (Hasyim, Aisyah, and Rakasiwi 2018). The same goes for medical students, as the process of medical education is crucial, requiring a high level of professionalism and responsibility to engage in their learning journey more actively, which is essential for achieving learning objectives (Widiansyah 2021).

Self-reflection itself is a concept of dialogic, personal reflection and occurs within each and every person. Self-reflection focuses on how a person examines their own beliefs and values, expectations and assumptions, family influences, and cultural conditions that affect their learning capability (Shafira 2015). Self-reflection is an important characteristic in medical professional competence and an important process that needs to be trained to students so that they are accustomed to consciously assessing their knowledge, skills, and attitudes that they had gained through a metacognitive process and critical thinking (Ruitan et al. 2020).

The method commonly used by educators for self-reflection is the ALACT model (Action, Looking back on action, Awareness of essential aspects, Creating alternative methods of action, and Trial). Another tool that can be used is the Kolb learning cycle, which is often applied in clinical learning, while the ALACT model is frequently used by educators (Braadbaart et al. 2023). However, Vanessa G. Polii's research also shows that the reflection-in-learning scale can be useful for gauging medical students' self-reflection skills. The stability of the reflection-in-learning scores in repeated measurements suggests that students should maintain a high level of overall learning activity. Scores on this scale predict shortcomings in describing broad and deep reflective learning, where each individual's pattern of reflection activity varies depending on learning conditions (Polii et al. 2020).

Self-reflection can improve understanding, demonstrate better results, and foster a desire for lifelong learning. Self-reflection is also useful for enhancing competence and continuous professional development in medical careers (Umam et al. 2021). Reflection benefits learning and personal development, making it a potentially valuable learning tool that can be implemented at various educational levels. Reflection can also enhance professionalism, clinical reasoning, continuous practice improvement, health management, learning, and competency (Lisiswanti 2013).

Self-reflection skills are vital for medical students, and it needs to be trained to students so that they are accustomed to consciously gauging their knowledge, skills, and attitudes through a metacognitive process and critical thinking. This can involve personal, dialogic reflection, where students gauge their own beliefs, values, expectations, and assumptions, alongside family influences and cultural conditions that shape their learning experiences (Oktaria et al. 2022). Research suggests that clinical educators often incorporate three types of reflective practice: reflecting on past experiences, reflecting during learning activities, and analyzing past learning activities (Nugraha, Widodo, and Riandi 2020).

Experience and knowledge gained from medical education are always applied by students later in their careers. With self-reflection, students can evaluate their learning process, think back on their past knowledge and achievement, recognize their strengths and weaknesses, and improve themselves from it. Previous studies have also demonstrated that using self-reflection in the learning process can significantly improve student outcomes (Pamungkasari et al. 2017). However, most students only know about self-reflection without having the ability to use it in meaningful situations. Students must consciously and independently carry out self-reflection (Aprilia 2016).

Medical students, who must undergo both preclinical (academic) and clinical (professional) training stages, are often exposed to intense and demanding educational environments. Medical students in their academic stages take part in lectures, training, and practical sessions while also being required to make and complete a thesis. Professional stage students, on the other hand, learn through direct patient interaction, conducting medical histories, performing real physical examinations, and diagnosing patients under clinical supervision. All of these are important in developing practical skills and competencies (Made Ayu Adesty Cahya Puspita 2023).

Given the importance and complexity of self-reflective practices in medical education, this study aims to explore the level of self-reflection among students at the Faculty of Medicine, Universitas Swadaya Gunung Jati. By understanding how self-reflection is practiced, this research seeks to highlight the potential of reflective learning models to improve student outcomes and professional competencies.

2. Methods

Study design/ Research procedures

This research was conducted at the Faculty of Medicine, Universitas Swadaya Gunung Jati Cirebon for 3 months from May to July 2024. The study utilizes a descriptive observational research method, designed to describe a state or problem observed in the field. The study uses a stratified random sampling technique, where the population is divided into strata, and random samples are selected from each stratum to estimate the population parameters, with the sample size calculated using the Slovin formula, resulting in a required sample size of 293 respondents. The sample obtained from students from both the academic stages and professional stages, which is split into the academic stages at the 1st level was 52 students, the 2nd level was 53 students, the 3rd level was 47 students, and the 4th level was 51 students, while at the professional stages during the 1st year was 47 students and 2nd year was 43 students. These students have met the inclusion criteria, namely active medical students at UGJ academic or professional stage, willing to be research respondents by filling out informed consent and filling out 100% of the questions on the given questionnaire. As for the students who are unwilling to fill out informed consent on the questionnaire that has been given and incomplete in answering the questionnaire are excluded.

Measurements

Data were collected using the "Reflection-in-Learning" questionnaire (Ruitan et al. 2020), with the questionnaire's validity and reliability already tested, and adapted into Indonesian to better facilitate responses. Data was collected using an online questionnaire distributed to students using Google Forms, to measure the primary variable of the level of self-reflection ability of UGJ medical students. The "Reflection-in-Learning" questionnaire consists of 14 questions with scoring scales of 1-7, the results are divided into six levels of indicators with the lowest score of 14 and highest score of 98 an interval score of 14, meaning that these indicators are: "Null" for the score of 14-27, "Minimal" for the score of 28-41, "Restricted" for the score of 42-55, "Partial" for the score of 56-69, "Sufficient" for the score of 70-83, and "Maximal" for the score of 84-98.

Statistical techniques

This study used univariate analysis. Univariate analysis was conducted to describe the frequency distribution of each independent research variable, providing a description of the self-reflection abilities of medical students at UGJ.

Ethical Clearance

The study was conducted following the research flow and was carried out after obtaining ethical approval from the Ethics Committee of the Faculty of Medicine, Universitas Swadaya Gunung Jati (No. 23/EC/FKUGJ/IV/2024) and secured informed consent from all respondents.

3. Results

Respondent characteristics

Based on Table 1, it is shown that the majority of students who are willing to participate in this study are female. The students are categorized into an academic stage with the level of 1 through 4 and professional stages of 1st and 2nd year, with the most students that participated in study coming from the 1st academic level students with a total of 38.3%.

Table 1. Respondent Characteristics

No	Academic Stages	Male students	Female Students	Number of students	Percentage (%)
1	Academic 1st Level	60	100	160	38.3
2	Academic 2nd Level	19	35	54	12.9
3	Academic 3rd Level	18	28	46	11.0
4	Academic 4th Level	12	53	65	15.6
5	Professional 1st Year	16	42	59	14.1
6	Professional 2nd Year	14	20	34	8.1
	Total	**139**	**279**	**418**	**100.0**

Self-reflection levels among students

From the 418 students participating shown by this table, about 45% of them have their self-reflection skill categorized as “Sufficient”, with the ones who are categorized as “Maximal” at 34.2% and “Partial” at 18.7%. Only a very small portion of students are categorized as “Restricted” at 1.9% and “Minimal” at 0.2%, while none of the reported students have a “Null” self-reflection skill.

Table 2. Student Self-Reflection

No	Self-Reflection	Number of students	Percentage (%)
1	Null	0	0
2	Minimal	1	0.2
3	Restricted	8	1.9
4	Partial	78	18.7
5	Sufficient	188	45.0
6	Maximal	143	34.2
	Total	**418**	**100.0**

Distribution of questionnaire scores

Based on Table 3, about 42.8% of the students’ answers was for the question of being aware of the purpose of their learning, which shows that many students understand the relevancy of their studies. On the other hand, the fewest of 1.2% students’ answers were for them reviewing previously studied subjects, which may reflect the challenge in applying self-reflection consistently.

Table 3. Questionnaire Scores Distribution

No	Question	Score 1		Score 2		Score 3		Score 4		Score 5		Score 6		Score 7	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Persentase
1	Question 1	2	0.5%	0	0%	2	0.5%	40	9.6%	118	28.2%	139	33.3%	117	28%
2	Question 2	1	0.2%	2	0.5%	5	1.2%	28	6.7%	92	22%	149	35.6%	141	33.7%
3	Question 3	5	1.2%	5	1.2%	18	4.3%	95	22.7%	124	29.7%	99	23.7%	72	17.2%
4	Question 4	0	0%	2	0.5%	18	4.3%	70	16.7%	155	37.1%	108	25.8%	65	15.6%
5	Question 5	1	0.2%	3	0.7%	11	2.6%	63	15.1%	125	29.9%	133	31.8%	82	19.6%
6	Question 6	1	0.2%	1	0.2%	5	1.2%	25	6%	76	18.2%	131	31.3%	179	42.8%
7	Question 7	1	0.2%	6	1.4%	0	0%	57	13.6%	139	33.3%	128	30.6%	87	20.8%
8	Question 8	1	0.2%	5	1.2%	13	3.1%	58	13.9%	113	27%	118	28.2%	110	26.3%
9	Question 9	2	0.5%	1	0.2%	4	1%	27	6.5%	89	21.3%	141	33.7%	154	36.8%
10	Question 10	1	0.2%	1	0.2%	13	3.1%	41	9.8%	129	30.9%	130	31.1%	103	24.6%
11	Question 11	4	1%	6	1.4%	13	3.1%	76	18.2%	109	26.1%	114	27.3%	96	23%
12	Question 12	2	0.5%	3	0.7%	11	2.6%	56	13.4%	116	27.8%	129	30.9%	101	24.2%
13	Question 13	2	0.5%	5	1.2%	18	4.3%	52	12.4%	126	30.1%	106	25.4%	111	26.6%
14	Question 14	2	0.5%	4	1%	14	3.3%	51	12.2%	109	26.1%	128	30.6%	110	26.3%

Table 5. Self-Reflection Based on Academic Stage

No	Self-Reflection	Academic Stages											
		Academic 1st Level		Academic 2nd Level		Academic 3rd Level		Academic 4th Level		Professional 1st Year		Professional 2nd Year	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
1	Null	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
2	Minimal	0	0%	0	0%	1	2.2%	0	0%	0	0%	0	0%
3	Restricted	3	1.9%	0	0%	1	2.2%	0	0%	3	5.1%	1	2.9%
4	Partial	23	14.4%	9	16.7%	9	19.6%	20	30.8%	12	20.3%	5	14.7%
5	Sufficient	65	40.6%	29	53.7%	25	54.3%	35	53.8%	24	40.7%	10	29.4%
6	Maximal	69	43.1%	16	29.6%	10	21.7%	10	15.4%	20	33.9%	18	52.9%
	Total	**160**	**100%**	**54**	**100%**	**46**	**100%**	**65**	**100%**	**59**	**100%**	**34**	**100%**

Self-reflection based on gender

Based on Table 4, It can be seen that both male and female students have the most common self-reflection ability at the “Sufficient” indicator, showing that self-reflection abilities are mostly consistent across both genders. Although female students have shown a noticeably higher self-reflection ability, with their “Maximal” indicator reaching 36.6% compared to the 29.5% of male students.

Table 4. Self-Reflection Based on Gender

		Gender			
		Male		Female	
No	**Self-Reflection**	**Frequency**	**Percentage**	**Frequency**	**Percentage**
1	Null	0	0%	0	0%
2	Minimal	1	0.7%	0	0%
3	Restricted	3	2.2%	5	1.8%
4	Partial	27	19.4%	51	18.3%
5	Sufficient	67	48.2%	121	43.4%
6	Maximal	41	29.5%	102	36.6%
	Total	**139**	**100%**	**279**	**100%**

Self-reflection based on academic stages

The analysis shown by Table 5, is that students from both the academic and professional stages’ self-reflection ability have fallen into the category of “Sufficient” or “Maximal”. Professional stage students, particularly those in their 2nd year, have demonstrated a far higher level of “Maximal” self-reflection ability of 52.9% if compared to the students from other academic stages.

4. Discussion

Self-reflection levels in learning among the medical students

The results of the data analysis of this study show that the majority of the research sample, which amounted to 418 UGJ medical students, have a level of self-reflection ability with the indicator of "Sufficient", followed by the reflection ability "Maximal" and "Partial". In addition, students' self-reflection ability also exhibits other indicators, namely "Restricted" and "Minimal". In addition, students' self-reflection ability also involves other indicators, namely "Restricted" and "Minimal", while no students had the self-reflection ability with the indicator of "Null". This result aligns with Lidia’s research, as it shows that medical students’ self-reflection ability can be mostly categorized as a sufficient level of skill (Ruitan et al. 2020).

The data also show that the students with the lowest indicator that are sitting at “Minimal” might have no clue as to how to optimize self-reflection in order to improve their learning outcomes. Studies shown by Made Ayu (2023), correlate this to the possibility of heavy workloads and assignments that hinder students from engaging in self-reflection. Those things can be a barrier to the self-reflection process, even though reflecting on past experiences is essential to recognizing achievements, strengths, and weaknesses (Made Ayu Adesty Cahya Puspita 2023).

On the other hand, students with the highest self-reflection indicator at "Sufficient", had the highest response ratings on question 6 of "Being aware of what I am learning and for what purpose", out of the 14 self-reflection questions presented to the students. This means that these students show the highest self-reflection ability in understanding the importance of the material they are learning and the purpose of that material for their education. Vanessa G. Polii research (2020) relates this finding to peer assessment, which helps students build teamwork skills through feedback. The results enable students to evaluate themselves, such as understanding what they know and do not know in their learning process (Polii et al. 2020).

Description of Self-Reflection Based on Gender

This study shows that there were more female respondents than males, with the number of female students being approximately twice the number of male students. This can be inferred as female students being more willing to participate in this study compared to male students, and that they have an even greater self-reflection skill at the maximum level compared to male students.

This finding lines up with previous research done by Lestari and Khan (2018), which shows that female participants are more willing to participate in self-reflection studies, which also shows better self-reflection compared to their male peers. Khan's research further reinforces this by stating that this can be boiled down to a higher literacy awareness among female students or a lack of interest in learning and striving among male students. Female students also show remarkable reflective abilities, which may be due to their personality framework and high proficiency in performing reflective assessments that demonstrate their creativity, talent, and special awareness (Khan et al. 2018).

Description of Self-Reflection Based on Academic Stage

The accumulated data shows that students in both academic and professional stages consider themselves capable of self-reflection with a level of ability that can be considered good, with some students being able to engage in self-reflection at a maximum level. This lines up with Lidia's research (2018), which shows that medical students are indeed capable of self-reflection at a level that can be considered as good enough, meaning that students can develop self-reliance in their learning (Khan et al. 2018).

Students in the academic stage have a fairly good level of self-reflection, although some students have less than adequate self-reflection abilities. Research by Lestari and Syafira (2019) suggests that academic stage students need a broader integration of self-reflection and always learn from experience, be aware of what is known or unknown, and always apply lifelong learning to improve professionalism as a doctor (Lestari 2019).

The results also show that professional stage students in their 1st Year have a good level of self-reflection while 2nd Year students have a higher level of "Maximal" self-reflection ability. The data also show that professional stage students have the highest level of maximum self-reflection ability if compared to the students at the academic stages. This can be linked to Pamungkasari's research, which shows that the ability and likelihood for reflection vary significantly and are influenced by an individual's experiences (Pamungkasari et al. 2017). Medical students at their professional stages have a different learning process, as they often encounter real-life patients and gain far more real experience in their daily lives as medical professionals. This difference in environment and experience between academic and professional stage students may explain why professional stage students have the highest level of maximum self-reflection compared to their more confined and less experienced juniors (Hanafi and Widjaja 2021).

Limitation

This study's result should be taken with caution in mind due to limitations found during the entirety of the research. First, this research only covered the descriptive variables of self-reflection and did not explore other potentially relevant variables. Secondly, the closed-ended questions in the questionnaire that was provided may have limited the respondents' ability to express and define their answers. Finally, due to the limitation of distributing online questionnaires, it is difficult to achieve the desired sample proportion for all students' academic stages.

5. Conclusion

In conclusion, this study shows that the self-reflection skills of medical students of Universitas Swadaya Gunung Jati, both at the academic and professional stage students, are classified on the level of ability that can be considered as quite good, with no students who are unable to carry out self-reflection and a small number of students only having a minimal level of self-reflection ability. Future research is encouraged to build upon these findings with additional variables that can be connected to self-reflection, with other aspects that haven't been researched more thoroughly.

Conflict of Interest

There is no conflict of interest. Nothing to disclose.

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