

## Satisfaction with Online and Offline Learning among 2020 Medical Students at Universitas Muslim Indonesia

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### ABSTRACT

**Introduction:** In recent years, Indonesian education has undergone drastic changes to respond to the world's digital challenges. When learning online, education components make many preparations while offline learning tends to require higher tuition fees. The lecturer needs to adjust the curriculum and lesson planning, learning practices and learning assessment, online and offline learning are different, so the level of student satisfaction will be very different. Knowing the level of satisfaction of online learning and offline learning in 2020 batch students of the Faculty of Medicine, Universitas Muslim Indonesia.

**Methods:** This study used a descriptive method with a cross-sectional research design.

**Results:** 252 samples who filled out the questionnaire, the level of online learning satisfaction of the class A sample, the satisfied category was 120 respondents (94.5%) and dissatisfied as many as 7 respondents (5.5%), while the level of offline learning satisfaction of the class A sample, the satisfied category was 121 respondents (95.3%) and dissatisfied as many as 6 respondents (4.7%). The level of online learning satisfaction of the class B sample, the satisfied category was 117 respondents (93.6%) and dissatisfied as many as 8 respondents (6.4%), the level of offline learning satisfaction of the class A sample, the satisfied category was 123 respondents (98.4%) and dissatisfied as many as 2 respondents (1.6%).

**Conclusion:** The students of the medical faculty class of 2020 at Universitas Muslim Indonesia are satisfied with both online and offline learning methods.

**Keywords:** Satisfaction level; online; offline; student



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## Introduction

The COVID-19 outbreak forced a rapid shift to online learning, as outlined in the Circular Letter of the Minister of Education and Culture (No: 36962 / MPK. A/MK/2020). This policy encouraged schools and universities to adopt online learning while emphasizing health protocols to prevent the spread of COVID-19.<sup>1</sup> Online learning has changed the way people perceives learning so far.<sup>2</sup> This sudden transition changed the perception of learning, requiring adjustments in curriculum, lesson plans, teaching practices, and assessments<sup>3</sup>.

The purpose of this study is compare the online and offline learning, focusing on student satisfaction, particularly among medical students, during the pandemic. Online learning relies on internet technology, making it suitable for lecture-based content but less effective for hands-on subjects. Network and technical issues also pose challenges. The Ministry of Education allowed flexibility for institutions to adjust their implementation.<sup>4</sup>

The government's policies significantly impacted higher education, requiring both public and private universities to adapt. While we are becoming accustomed to online learning, it differs greatly from offline learning, which affects students' psychology.<sup>5</sup> According to Karwati (2014), the quality and satisfaction of online learning vary from offline, as do academic services, which had to transition to digital formats. Student satisfaction is crucial for universities to remain competitive.<sup>6</sup>

Face-to-face learning allows spontaneous interaction in a physical environment, which enhances psychological and emotional engagement. However, it comes with higher tuition fees, especially at prestigious institutions (Norman, 2016). Experts agree that the interactive experiences in traditional classrooms are hard to replicate online.<sup>7</sup>

Few studies have investigated satisfaction levels in online versus offline learning, particularly among medical students.<sup>8</sup> Sriwahyuni (2018) found that higher teacher professionalism leads to increased student satisfaction.<sup>9</sup> Research by Achmad C. (2020) indicated that online learning helped maintain stable student outcomes during the COVID-19 pandemic.<sup>10</sup>

## Methods

The methods use descriptive research. The design of this study is *cross-sectional*, meaning that in this study the form of data collection is carried out within a certain period of time, research only once and observation throughout the research process, which is only once and there is no repetition.

Total sampling is a sampling technique, where the number of samples is equal to the number of populations. The total research sample is the total number of students of the Faculty of Medicine, Universitas Muslim Indonesia who attended online and offline lectures in the class of 2020.

**Result**

The data collection was carried out on medical education students of the Faculty of Medicine, Universitas Muslim Indonesia. This research was conducted by taking secondary data in the form of questionnaires distributed to the class of 2020 to assess the level of student satisfaction in participating in online and offline lectures. The sample 252 students from the class of 2020 of the Faculty of Medicine UMI , consisting of 127 samples from class A and 125 samples from class B.

**Table. 1 Distribution frequency of online and offline learning satisfaction levels in class of 2020 class, faculty of medicine, Universitas Muslim Indonesia**

Satisfaction Level	Learn Online		Learn Offline	
	Amount (N)	Percentage (%)	Amount (N)	Percentage (%)
Satisfied	120	94,5	121	95,3
Not satisfied	7	5,5	6	4,7
Total	127	100,0	127	100,0

Source: Primary Data Analysis, 2023

Based on **Tabel. 1**, out of 127 respondents with a level of satisfaction with online learning in class A students of the Faculty of Medicine, Universitas Muslim Indonesia in the satisfied category as many as 120 respondents (94.5%) and dissatisfied as many as 7 respondents (5.5%) and it can also be known that from 127 respondents with a level of satisfaction with learning satisfaction in class A students of the Faculty of Medicine, Universitas Muslim Indonesia in the satisfied category as many as 121 respondents (95.3%) and dissatisfied as many as 6 respondents (4.7%)

**Table. 2 Distribution frequency of online and offline learning satisfaction levels in class of 2020 class b students faculty of medicine, Universitas Muslim Indonesia**

Satisfaction Level	Learn Online		Learn Offline	
	Amount (N)	Percentage (%)	Amount (N)	Percentage (%)
Satisfied	117	93,6	123	98,4
Not satisfied	8	8	2	1,6
Total	125	100,0	125	100,0

Source: Primary Data Analysis, 2023

Based on **Tabel. 2**, 125 respondents with the level of online learning satisfaction in class B students of the Faculty of Medicine, Universitas Muslim Indonesia in the satisfied category as many as 117 respondents (93.6%) and dissatisfied as many as 8 respondents (6.4%) and it can also be known that from 125 respondents with the level of offlinelearning satisfaction in class A students of the Faculty of Medicine, Universitas Muslim Indonesia in the satisfied category as many as 123 respondents (98.4%)

and dissatisfied as many as 2 respondents (1.6%).

**Table. 3 Distribution of offline and online learning satisfaction frequency based on the type of learning in class a class 2020 faculty of medicine, Universitas Muslim Indonesia**

Types of Learning	Satisfaction Category	Method		
		Offline	Online	
Lecture	Satisfied	n	123	117
		%	96,9	92,1
Practicum	Satisfied	n	123	114
		%	96,9	89,8
PBL	Satisfied	n	117	115
		%	93,7	92,1
CSL	Satisfied	n	123	113
		%	96,9	89,0
Pleno	Satisfied	n	121	117
		%	95,3	92,1

Source: Primary Data Analysis, 2023

Based on **Table. 3**, the level of class satisfaction A learning aspects of lectures that answered satisfied in the offline method was 123 respondents (96.9) and the online method was 117 respondents (92.1). In the practicum aspect, 123 respondents were satisfied with the offline method (96.9) and the online method as many as 114 respondents (89.8). In the PBL aspect, 117 respondents were satisfied with the offline method (93.7) and the online method as many as 115 respondents (92.1). In the CSL aspect, 123 respondents (96.9) answered satisfied with the offline method (96.9) and 113 respondents with the online method (89.0). In the plenary aspect, 121 respondents were satisfied with the offline method (95.3) and the online method as many as 117 respondents (92.1).

**Table 4. Distribution of offline and online learning satisfaction frequency based on the type of learning in class a class 2020 faculty of medicine, Universitas Muslim Indonesia**

Types of Learning	Satisfaction Category	Method		
		Offline	Online	
Lecture	Satisfied	n	4	10
		%	3,1	7,9
Practicum	Satisfied	n	4	13
		%	3,1	10,2

PBL	Satisfied	n	8	10
		%	6,3	7,9
CSL	Satisfied	n	4	14
		%	3,1	11,0
Pleno	Satisfied	n	6	10
		%	4,7	7,9

Source: Primary Data Analysis, 2023

Based on **Table 4**, the level of satisfaction with class A learning aspects of lectures that answered dissatisfaction in the offline method was 4 respondents (3.1) and the online method was 10 respondents (7.9). In the practicum aspect, 4 respondents (3.1) answered dissatisfaction with the offline method (3.1) and the online method as many as 13 respondents (10.2). In the PBL aspect, 8 respondents (6.3) were dissatisfied with the offline method (6.3) and the online method as many as 10 respondents (7.9). In the CSL aspect, 4 respondents (3.1) were dissatisfied with the offline method (3.1) and the online method was 14 respondents (11.0). In the plenary aspect, 6 respondents (4.7) were dissatisfied with the offline method (4.7) and the online method as many as 10 respondents (7.9).

**Table 5. Distribution frequency of offline and online learning satisfaction levels based on the type of learning in class of 2020 students class b faculty of medicine, Universitas Muslim Indonesia**

Types of Learning	Satisfaction Category	Method		
		Offline	Online	
Lecture	Satisfied	n	123	120
		%	98,4	96,0
Practicum	Satisfied	n	120	115
		%	96,0	92,0
PBL	Satisfied	n	117	115
		%	93,6	92,0
CSL	Satisfied	n	121	116
		%	96,8	92,8
Pleno	Satisfied	n	124	118
		%	99,2	94,4

Source: Primary Data Analysis, 2023

Based on **Table 5**, the level of satisfaction with class A learning aspects of lectures that answered satisfied in the offline method was 123 respondents (96.9) and the online method was 120 respondents (96.0). In the practicum aspect, 120 respondents were satisfied with the offline method (96.0) and the

online method as many as 115 respondents (92.0). In the PBL aspect, 117 respondents were satisfied with the offline method (93.6) and the online method as many as 115 respondents (92.0). In the CSL aspect, 121 respondents were satisfied with the offline method (96.8) and the online method as many as 116 respondents (92.8). In the plenary aspect, 124 respondents were satisfied with the offline method (99.2) and the online method as many as 118 respondents (94.4).

**Table 6. Distribution frequency of offline and online learning satisfaction levels based on the type of learning in class of 2020 students class b faculty of medicine, Universitas Muslim Indonesia**

Types of Learning	Satisfaction Category	Method		
		Offline	Online	
Lecture	Not Satisfied	n	2	5
		%	1,6	4,0
Practicum	Not Satisfied	n	5	10
		%	4,0	8,0
PBL	Not Satisfied	n	8	10
		%	6,4	8,0
CSL	Not Satisfied	n	4	9
		%	3,2	7,2
Pleno	Not Satisfied	%	99,2	94,4
		n	1	7

Source: Primary Data Analysis, 2023

Based on **Table 6**, the level of satisfaction with class A learning aspects of lectures that answered dissatisfaction in the offline method was 2 respondents (1.6) and the online method was 5 respondents (4.0). In the practicum aspect, 5 respondents (4.0) answered dissatisfaction with the offline method (4.0) and the online method as many as 10 respondents (8.0). In the PBL aspect, 8 respondents (6.4) answered dissatisfaction with the offline method (6.4) and 10 respondents (8.0) in the online method. In the CSL aspect, 4 respondents (3.2) were dissatisfied with the offline method (3.2) and the online method as many as 9 respondents (7.2). In the plenary aspect, those who answered dissatisfaction with the offline method were 1 respondent (0.8) and the online method as many as 7 respondents (5.6).

## Discussion

Based on data analysis and findings in the field further contributing to knowing the analysis of the level of satisfaction with online learning and offline learning in students of the class of 2020 Faculty of Medicine, Universitas Muslim Indonesia.

Based on the results of the study, showed that of 252 respondents with the level of online learning satisfaction in students of the class of 2020 Faculty of Medicine, Universitas Muslim Indonesia class A in the satisfied category, there were 120 respondents (94.5%) and 7 respondents (5.5%) dissatisfied in the class of 2020 students of the Faculty of Medicine, Universitas Muslim Indonesia class B in the satisfied category as many as 117 respondents (93.6%) and dissatisfied as many as 8 respondents (6.4%).

Research by Susilawati, S. et al (2022) entitled online learning satisfaction during the *COVID-19* pandemic in terms of: class, gender and age. This shows the results of the assessment of attitudes and responses through discussion activities, namely overall that students are satisfied with the online learning process that has been carried out by educational institutions and this is also in line with our research.<sup>11</sup> Several previous studies have also stated that online learning is effective when the emergency conditions such as during the *COVID-19* pandemic outbreak. However, educational institutions are expected to improve online learning services such as the internet network and the intention to participate in the online learning process to achieve the expectations of students.<sup>12</sup>

Online learning is considered the best solution because it can provide opportunities for students to take certain courses that are difficult to reach offline and can provide massive and open learning services so that they have a wide and large range of enthusiasts and provide good learning outcomes.<sup>12</sup> This is also in line with research conducted by Fitria, N. M and Sukmawati, W. (2022) which states that there are significantly higher results in the learning outcomes of mathematics subjects building learning spaces carried out online compared to offline learning. Effectiveness is the key to successful online learning so that students are honed in their ability to see reality in the real world then analyze and share it with the public through online media.<sup>13</sup>

Based on the results of the study, showed that of 252 respondents with a level of offline learning satisfaction in students of the class of 2020 Faculty of Medicine, Universitas Muslim Indonesia class A in the satisfied category as many as 121 respondents (95.3%) and dissatisfied as many as 6 respondents (4.7%) and the level of offline learning satisfaction in the class of 2020 students of the Faculty of Medicine, Universitas Muslim Indonesia class B in the satisfied category as many as 123 respondents (98.4%) and dissatisfied as many as 2 respondents (1.6%).

Based on research conducted by Rosari, B. E. et al (2022) entitled The Effect of Online Learning Changes to Offline Learning on the Learning Interests of Grade VII Students of Wesley Marindal II Junior High School, stated that student interest in learning is higher in offline learning because offline learning is considered more effective by students due to several things such as direct interaction, Save quota, do not worry about bad internet network, improve concentration and better understand the material delivered by the teacher directly.<sup>13</sup> In line with research conducted by Tullah, H. (2022) which states that the

difference in offline and online learning patterns is that when offline learning students read books more often before learning begins, more often make their own study schedules, study according to pre-made schedules, make summaries of material before and have studied while during online learning students rarely do these activities.<sup>14</sup>

The level of satisfaction with class A learning aspects of lectures that answered satisfied in the offline method was 96.9% and the online method was 92.1%. Then the level of satisfaction with learning class B aspects of lectures that answered were satisfied in the offline method as much as 98.4% and online methods as much as 96.0%. The level of satisfaction with online and offline learning methods in the lecture aspect generally same. However, the offline learning method is slightly higher than the online method, this is because the offline lectures applied can form emotional discipline and students can create a good learning environment so the students will be more enthusiastic about learning which will have an impact on better learning outcomes (9). Several studies agree with offline learning can use cause meaning full and real interactions between students and lecturers, while online lecturers often encounter passive interactions.<sup>15</sup>

The level of satisfaction with learning class A in practicum aspects that answered satisfied in offline methods was 96.9% and online methods were 89.8%, while the level of satisfaction in learning class B practicum aspects who answered satisfied in offline methods was 96.0% and online methods as much as 92.0%. The level of satisfaction with online and offline learning methods in the practicum aspect in general is almost the same. However, the offline learning method is slightly higher than the online method. Face-to-face practicum skills can develop basic scientific skills through the process of observing, measuring, analyzing data and using tools directly.<sup>16</sup> Practicum can make students easier to practice the skills according to procedures, and students can learn to interpret the results of a test.<sup>14</sup> Practicum also helps students in compiling learning concepts, in contrast to online practicum which usually relies on understanding knowledge through online media by watching videos from the media platforms provided or even using makeshift tools at home which causes students to lack understanding of skills because they can only imagine skills through prepared videos <sup>17</sup>.

The level of satisfaction with learning class A aspects of PBL who answered satisfied in the offline method was 93.7% and the online method was 92.1%, while the level of satisfaction in learning class B aspects of PBL who answered satisfied in the offline method was 93.6% and the online method was 92.0%. The level of satisfaction with online and offline learning methods in the PBL aspect in general is almost the same. However, the offline learning method is slightly higher than the online method. In principle, a good PBL will provide quality educational output which is largely determined by a structured discussion process using the *seven jump method* that occurs during the tutorial, the role of the tutor greatly determines the success of this program then students become self-directed learning individuals<sup>18</sup>. This

PBL strongly supports open, reflective, critical and active learning, so that learners have a high level of confidence.<sup>19</sup> When PBL is carried out with online methods students tend to follow directions, less active and less critical, through PBL students must be able to become core actors in tutorials that will be reviewed and assessed objectively ability in critical thinking, ability to explain, leadership attitude and cooperation of students both in tutorial discussions and outside.<sup>20</sup>

The level of satisfaction with learning class A in the CSL aspect who answered satisfied in the offline method was 96.9% and the online method was 89.0%, while the level of satisfaction in class B learning in the CSL aspect who answered satisfied in the offline method was 96.8% and the online method was 92.8%. The level of satisfaction with online and offline learning methods in the CSL aspect in general is almost the same. However, the offline learning method is slightly higher than the online method, this is because in online CSL students can only listen to explanations without directly practicing it, because there is no or lack of tools and materials where students are, besides that online CSL activities are greatly influenced by the quality of the internet network, so it greatly impacts the quality of learning and affects students' ability to understand the material taught and satisfaction students in doing CSL online.<sup>21</sup> Other factors that make students feels that there is a lack of interaction between the instructor and students, making it difficult for students to understand the skills learned. In offline CSL instructors can provide information well, and become a facilitators, designers and developers of learning resources. CSL really needs the lecturers who act as observers who provide feedback at the *correction* and *reinforcement* stages, and provide direction to students in learning correct and appropriate procedural techniques from the demonstration stage to performance<sup>17</sup>.

The satisfaction level of class A learning in the plenary aspect that answered satisfied in the offline method was 95.3% and the online method was 92.1%. The level of satisfaction with class B learning plenary aspects that answered satisfied in the offline method as much as 99.2% and the online method as much as 94.4%. The level of satisfaction with online and offline learning methods in the plenary aspect is generally almost the same. However, the offline learning method is slightly higher than the online method, this is because the panel discussion should have a massive and active discussion between the speaker and the *audience*, this will happen when these two parties can participate well in the panel/plenary discussion.<sup>14</sup> Unlike when plenary discussions with online methods are very difficult for active interaction to occur because they are still constrained by several problems such as uneven internet networks, while in plenary with offline methods it is very supportive of active interaction and the discussion process is more focused. In addition, the presence of tutors or speakers is the key to successful active discussions because plenary not only facilitates students in gaining knowledge, but also general attitudes and expertise that medical students should have (22<sup>22</sup>).

## Conclusion

This study concludes that the students of the class of 2020 fakultas kedokteran Universitas Muslim Indonesia are satisfied with the online and offline learning methods. The author suggests that by reviewing the data of research results that are less significant between online learning and offline learning, researchers should then be able to compile questionnaires properly in order to get better and more significant results. Inovasi learning really needs to be developed to increase satisfaction in student learning. The need for interesting and fun learning is not only monotonous by using one method but trying various methods to create a learning experience for students that is able to increase their understanding of deeper material concepts.

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There is no conflict of interest.

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## References

1. Direktorat Jenderal Pendidikan Vokasi. Kementerian Pendidikan dan Kebudayaan. *Http://KemdikbudGoId/*. 2020;(021):1-3. <http://kemdikbud.go.id/main/?lang=id>
2. Sadikin A, Hamidah A. Pembelajaran Daring di Tengah Wabah COVID-19 (Online Learning in the Middle of the COVID-19 Pandemic). *J Ilm Pendidik Biol.* 2020;6(1):214-224.
3. Fitra HFMSRD. Analisis Kesan, Tantangan, Hambatan, dan Harapan Pembelajaran Daring di Era Pandemi Covid 19. *J Inov Pendidik Ekon.* 2020;8(2):127-135.
4. Yani Y, Bernarda Teting. Komparasi Hasil Belajar Mata Kuliah Patofisiologi antara Pembelajaran dalam Jaringan (Daring) dengan Pembelajaran Luar Jaringan (Luring) Mahasiswa Semester Ii STIKES Dirgahayu Tahun Akademik 2019/2020. *J Keperawatan Dirgahayu.* 2020;2(2):23-31. doi:10.52841/jkd.v2i2.152
5. Muhammad Rendi Ramdhani A kholik. Analisis Tingkat Kepuasan Mahasiswa Berdasarkan Layanan Akademik Padamasa COVID-19 di Perguruan Tinggi Swasta Bogor. *Tadbir Muwahhid.* 2022;6(1):1-15.
6. Karwati E. The Influence of E-Learning Based on Information. *Penelit Komun.* 2021;17(1):41-54.
7. Lilis Setianingrum. Studi Komparasi Hasil Belajar Siswa dengan Menggunakan Pembelajaran Daring dan Pembelajaran Luring pada Mata Pelajaran Akidah Akhlak Kelas X Rif Klego. Published online 2021.
8. Maria Theresia Priyastuti S. Kepuasan Mahasiswa terhadap Pembelajaran Daring Selama Pandemi COVID-19. *J Lang Heal.* 2020;1(2):49-56.
9. Anggrawan A. Analisis Deskriptif Hasil Belajar Pembelajaran Tatap Muka dan Pembelajaran Daring Menurut Gaya Belajar Mahasiswa. *J MATRIK.* 2021;18(2):339-346.
10. Yuniarti Erna Ningsi. Pengaruh Sistem Pembelajaran Daring terhadap Kepuasan Belajar Siswa SD Negeri 3 Bengkulu Selatan. Skripsi. Prodi Pendidikan Guru Madrasah Ibtidaiyah Fakultas Tarbiyah Dan Tadris. IAIN Bengkulu. Published online 2021.

11. Susilawati S, Pradana TA, Awalya A, Anggraini W, Nugraha Y. Kepuasan Pembelajaran Online Selama Pandemi COVID-19 Ditinjau Dari: Kelas, Jenis Kelamin dan Umur. *Cons Berk Kaji Konseling dan Ilmu Keagamaan*. 2022;9(1):57. doi:10.37064/consilium.v9i1.11671
12. Bayrak F. Associations between University Students' Online Learning Preferences, Readiness and Satisfaction. *Knowl Manag E-Learning*. 2022;14(2):186-201. doi:10.34105/j.kmel.2022.14.011
13. Fitria MN, Sukmawati W. Analisis Perbedaan Hasil Belajar pada Pembelajaran Matematika Secara Daring dan Luring Siswa Kelas V SDN Tegal Alur 21 Petang. *Ideas J Pendidikan, Sos dan Budaya*. 2022;8(3):833. doi:10.32884/ideas.v8i3.853
14. Tullah H, Kosim K, Zuhdi M, Makhrus M. Analisis Pola Belajar Luring dan Daring pada Mahasiswa Pendidikan Fisika Universitas Mataram. *J Ilm Profesi Pendidik*. 2022;7(2):259-269. doi:10.29303/jipp.v7i2.400
15. Dodi Sukma R.A, Hardianto R, Heleni Filtri. Analisa Tingkat Kepuasan Mahasiswa terhadap Perkuliahan Daring pada Era Pandemi COVID-19. *Zo J Sist Inf*. 2021;3(2):130-142. doi:10.31849/zn.v3i2.8353
16. Tumanggor EBR, Sitorus PJ, Siagian BA. Pengaruh Perubahan Pembelajaran Daring Ke Pembelajaran Luring terhadap Minat Belajar Siswa Kelas VII SMP Wesley Marindal II. *J Pendidik Tambusai*. 2022;6(1):8280-8288.
17. Ramadhani Putri A. Gambaran Preferensi Mahasiswa Tahap Preklinik Fakultas Kedokteran Universitas Lampung Terhadap Berbagai Metode Pengajaran. *Unram Med J*. 2022;11(4):1145-1152. doi:10.29303/jku.v11i4.849
18. Demulawa M, Mardin H, Kobi W, Uno AH, Lakutu DN, Despianti SR. Peningkatan Pemahaman Konsep Perpindahan Kalor Dengan Metode Praktikum Di Kelas V SD IT Qurratu 'Ayun Kota Gorontalo. *J Pendidik dan Pengabdian Masyarakat*. 2022;5(3):252-258. doi:10.29303/jppm.v5i3.3806
19. Julian Muhammad Yasin, Syamsu Rijal, Edward Pandu Wiriansya, Sri Julyani SL. Efektivitas Pembelajaran Metode Daring Pada Kegiatan Praktikum di Fakultas Kedokteran Universitas Muslim Indonesia. *Fakumi Med J J Mhs Kedokt*. 2022;3(6):359-367.
20. Monika L, Wahyuni S. Persepsi Mahasiswa Terhadap Peran Tutor pada Tutorial Problem Based Learning di Fakultas Kedokteran Universitas Baiturrahmah. *J Ilm Profesi Pendidik*. 2022;7(4):2412-2420. doi:10.29303/jipp.v7i4.655
21. Asni E, Hamidy MY. Manfaat dan Hambatan Problem-Based Learning (PBL) Menurut Perspektif Mahasiswa Baru di Fakultas Kedokteran Universitas Riau. *J Ilmu Kedokt*. 2020;4(2):95. doi:10.26891/jik.v4i2.2010.95-101
22. Tomy Fernando IM. Perbedaan Hasil Belajar IPS Dengan Menggunakan Metode Panel Dan Metode Curah Gagasan (Brainstroming) Di Kelas V SDN Jatiranggon Ii. *J Ilm Pendidik Dasar*. 2023;8(1):149-200. <https://repositorio.ufsc.br/xmlui/bitstream/handle/123456789/167638/341506.pdf?sequence=1&isAllowed=y>  
<https://repositorio.ufsm.br/bitstream/handle/1/8314/LOEBLEIN%20CARLA.pdf?sequence=1&isAllowed=y> LUCINEIA CARLA.pdf?sequence=1&isAllowed=y  
<https://antigo.mdr.gov.br/saneamento/prooes>