

# Peer Assisted Learning in Dynamics of Anatomic Learning

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## Article Info

## Abstract

Keywords:  
*Learning;*  
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*Peer-assisted learning*

Anatomy is a fundamental science that should be studied and understood by both clinical and non-clinical students. Students at medical schools must study and understand the anatomical system, which serves as a foundation for medical science and helps students better understand how their bodies work in general. It is common for some universities and colleges to use the Peer Assisted Learning (PAL) method when conducting anatomy practicum activities for their students. Students at Jendral Achmad Yani University's Faculty of Medicine will be the focus of this investigation. There are a variety of students' perceptions of the PAL method and a variety of factors that influence the PAL method in the teaching and learning process, including supporting factors like good communication from students. This study employs an analytical observation method with a descriptive analysis approach. By the learning objectives, peer tutors and the material provided by peer tutors are utilized. Preparation for implementation, peer tutors, and peer tutors are all obstacles to PAL implementation. PAL's application in CSL, the use of technology, and evaluation in its implementation are also students' expectations for PAL's implementation.

Kata kunci:  
*Pembelajaran;*  
*Anatomi;*  
*Peer assisted learning*

## Abstrak

Anatomi merupakan ilmu dasar yang penting untuk dipelajari dan dipahami baik bagi mahasiswa klinik maupun mahasiswa kedokteran pada umumnya. Selain mempelajari beberapa ilmu biomedis dan klinis, seorang mahasiswa fakultas kedokteran juga dituntut untuk mempelajari dan mengetahui sistem anatomi, dimana anatomi merupakan salah satu mata kuliah wajib yang menunjang ilmu di bidang kesehatan khususnya untuk memahami fungsi-fungsi dalam tubuh. Salah satu metode yang sering digunakan oleh beberapa perguruan tinggi dalam melaksanakan kegiatan praktikum anatomi adalah melalui metode Peer Assisted Learning (PAL). Penelitian ini bertujuan untuk menggali secara mendalam persepsi mahasiswa terhadap PAL dalam proses pembelajaran di Fakultas Kedokteran, Universitas Jendral Achmad Yani. Penelitian ini menggunakan metode observasi analitik dengan pendekatan analisis deskriptif, dan hasil penelitian ini menjelaskan bahwa terdapat berbagai persepsi siswa mengenai pengertian dan manfaat metode PAL, serta beberapa faktor yang mempengaruhi PAL dalam proses belajar mengajar, termasuk faktor pendukung seperti komunikasi yang baik dari siswa. Tutor sebaya dan materi yang diberikan tutor sebaya sesuai dengan tujuan pembelajaran. Faktor yang menghambat proses pelaksanaan PAL antara lain kesiapan pelaksanaan, kesiapan tutor sebaya, dan kesiapan tutor sebaya. Selain itu, terdapat pula persepsi mahasiswa mengenai harapan implementasi PAL yaitu penerapan PAL di CSL, pemanfaatan teknologi, dan evaluasi dalam implementasinya.

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## INTRODUCTION

Medical science is one of the most dynamic fields of study, and it is constantly evolving in various universities and colleges throughout Indonesia. This education is provided in order to produce competent physicians, particularly those who provide primary health care. Medical science is critical for medical students to graduate as qualified doctors who can practice medicine or provide the highest health care to the community (Ala et al., 2021). The undergraduate medical stage is comprised of two stages: clinical and community learning, humanities, clinical medicine, and public health/preventive medicine/community medicine, which is concerned with the prevention of health problems in individuals, families, and communities. Additionally, physicians have a clinical skill competency area for performing basic laboratory examinations.

Along with several biomedical and clinical sciences, a medical faculty student is required to study and understand the anatomical system, with anatomy being one of the mandatory lectures that supports science in the health sector, particularly to understand how the body functions and how structures and functions change as a result of infection by pathogens. Anatomy plays a critical role in medical practice, including the recognition of palpation, auscultation, percussion, and fluids from body cavities, all of which require in-depth knowledge of anatomy. Anatomy is the fundamental subject of medical science that all medical students must study, and the cadaver has become indispensable in the study of anatomy throughout the world. Several medical institutions are currently developing methods of teaching anatomy to undergraduate students without the use of cadavers (Hanifa, 2017; Guraya & Abdalla, 2020).

To learn the basic science of anatomy in medical lectures, you can go through two stages, namely the lecture and practicum stages (Firyana, 2016). Practical activities are supporting activities carried out in an anatomy laboratory, while the aim is to study the structure of the human body directly with mannequin or cadaver media. Anatomy practicum provides benefits in a three-dimensional view of anatomy, strengthening and elaborating the knowledge gained during lecture hours. Anatomy is one of the oldest medical materials that explain the morphology and structure of the human body, in medical practice, anatomy plays a role in physical examination that leads to diagnosis, communication to patients and their families and other health workers, guides invasive intervention procedures and emergency aid and determines complications.

Medical students must know several important things about the importance of delivering teaching about anatomy in lecture classes, including (1) In the last few decades, there has been an extraordinary development of techniques for anatomical imaging in living patients. Examples range from endoscopy and laparoscopy to computed tomography (CT) and magnetic resonance imaging (MRI) and the development of new technologies for three-dimensional visualization. The development of sophisticated imaging techniques is accompanied by the development of minimally invasive therapies aimed at specific organs or sites within them. Therefore, knowledge of macro-anatomy is becoming increasingly important, not only for interpreting the images produced by sophisticated techniques but for understanding the path taken to achieve therapeutic targets at specific sites. Anatomy practicum is a series of activities that allow students to practice their skills and knowledge. Anatomy practicum provides a learning experience that aims to enable students to understand, interact and observe body structures, shapes, locations, sizes, and relationships of various structures of the human body (Pratama, 2017; Rahadi, 2019).

Some universities or colleges often use one method to carry out their anatomy practicum activities through the Peer Assisted Learning (PAL) method. Peer Tutors come from fellow students trained beforehand to be competent to teach it back to other students. Peer-assisted learning (PAL) is a method of learning with the help of peers and not a professional lecturer. In practice, students help each other to learn and convey it back to other friends. PAL can train students in independent learning and to achieve their learning goals. PAL has been widely developed and applied in various institutions around the world. This method continues to develop into the most considered method, especially in evaluating student development when carrying out anatomy practicum activities (Sallatu, 2019).

People use PAL because it's more effective, students share information, and they learn how to communicate better. Lecturer assistants assist in implementing PAL by assisting with teaching and learning activities. A lecturer assistant will teach each group of students in two separate sessions. There is an anatomy lecture before a practicum so that students can better comprehend the material presented in the practicum itself (Hunt et al., 2020; Hammond 2010).

This study relied on a number of prior studies as a source of information and inspiration. Anatomy practicum students use the Peer Assisted Learning Learning Method as their first method of instruction. As a follow-up study, Zulvia et al. (2020) conducted a study titled the role of peer-assisted learning in anatomy practicum learning using the analytic method and cross-sectional approach. Anatomy practicum exam results were found to not correlate with students' perceptions of Peer Assisted Learning in the anatomy lab. Finally, Habibah (2019) used qualitative methods to analyze the comprehension of medical students in boimedik laboratory learning. However, based on prior research results, this study's problem was more focused on how the PAL method was used to distribute teaching materials to all students, rather than peer-assisted learning in anatomy practical learning at a medical school. Our goal is to see how this method impacts students' desire to learn, particularly during anatomy practicum.

## METHODS

In this study, the analytical observation method is used with a descriptive approach to data analysis. Researchers studied students' perceptions of the PAL method's implementation. First-hand information gathered during the research process is used in this study. The researchers then used in-depth interviews with PAL lecturers to triangulate their findings in order to get the best results possible. In addition to students, seven lecturers were included on the interview list. A second observation was made using the PAL method of learning. An investigation is into how the Peer Assisted Learning process affects students' learning. Thematically, data analysis was conducted by preparing and organizing the data, reducing the data, and presenting the data. Using data triangulation, Jendral Achmad Yani University students and medical lecturers were asked to verify the data's credibility. The supervisor's dependency test was the most critical research instrument used during data collection, and the researchers performed it as the final step. Students' perceptions of the PAL method are based on data analysis and in-depth interviews with relevant lecturers, which yielded three themes: understanding and benefits from friends, factors that influence friends, and expectations. Implementation of PAL at Achmad Yani General University's Faculty of Medicine (Strauss & Corbin, 2003; Moleong, 2004).

## FINDINGS AND DISCUSSION

### *Process and Utilization of Peer Assisted Learning Method*

**Table 1. Perceptions of Students and Lecturers on the Understanding and Benefits of PAL**

No	Understanding and Benefits of PAL	Occurrence Frequency
1	Helping peer tutors to understand the material	19
2	Motivating peer tutees	10
3	Helping peer tutors to understand the material	2
4	Introducing the environment and ways of learning	1
5	Increase student self-confidence and responsibility	1
6	The learning process with peers	15

In the table 1, we can conclude that the perception of students and lecturers towards the application of the peer-assisted learning method is that the PAL implementation process is quite effective because it is able to form a good communication between students and related lecturers, besides the PAL method also helps lecturers in introducing the environment and learning methods to new students who follow the medical anatomy learning method. The results of this good perception value were obtained because in the application of the PAL method, in the anatomy practicum at the Faculty of Medicine, Jendral Achmad Yani University students felt very helpful in learning where students felt comfortable showing their abilities in front of lecturer assistants, students were more active and interacted with each other in learning. , students are freer to communicate with teaching assistants, lecturer assistants are more helpful during practicum activities. This is in line with the advantages of PAL which can increase self-confidence, reduce stress and anxiety when working with peers, feel comfortable being taught by peers , improve communication skills, more active learning engagement, improve cognitive reasoning, critical thinking, and skills. PAL also provides positive benefits on the cognitive aspects of the learning process.

Internal factors come from within, such as interest, motivation and intelligence. Interest is an activity carried out by students regularly to pay attention and remember some activities in the learning process. The higher a person's interest, the easier and faster it to understand various lessons. At the same time, motivation is a power or strength that comes from a person to provide readiness so that the goals that have been set are achieved. High learning motivation will affect learning outcomes because he will try to understand the subject matter that has been given (Fuchs & Burish, 2000; ).

External factors come from outside a person, such as the learning environment. Good environmental conditions will affect the spirit of learning and result in maximum learning outcomes. On the other hand, a less conducive environment will make the learning process uncomfortable. Environmental factors consist of two kinds, namely, the social environment and the physical environment. The social environment includes the family environment, friends, teachers, employees, and so on. For example, the presence of other people while studying often interferes with learning activities. The physical environment includes a place to study, learning tools, learning atmosphere and learning resources (Rohrbeck et al., 2003; Loda et al., 2020).

**Table 2. Perceptions of students and lecturers on factors that affect PAL**

No	Factors affecting PAL	Occurrence Frequency
1	Communication between Peer Tutors and Peer Tutees	20
2	Materials from Peer Tutors According to Learning Objectives	14
3	Inadequate Infrastructure	24
4	Less conducive learning atmosphere	23
5	Too Many Students	20
6	Material Validity from Peer Tutor	19
7	No Reference Module yet	18

In the table 2, students argue that the PAL method can be applied to learning, a skill exercise. Besides that, the lecturer also believes that the implementation of PAL must be evaluated by the medical education section of the Faculty of Medicine, Jendral Achmad Yani University. Besides that, implementing the PAL method requires a developmental method with adequate use of technology.

**Table 3. Student statements regarding the application of the pal method**

Statement	Occurrence Value
I feel more comfortable showing my abilities in front of practicum assistants than in front of lecturers	25
Interaction and cooperation between friends occurs more when studying than when studying with lecturers	20
The level of communication generated through the PAL method is very high, compared to before following the method	19
The ability to complete anatomical tasks gets better with the help of the PAL method	23
Responses about all students from practicum assistants are more realistic and honest compared to understanding from lecturers because these responses come from the views of fellow students	20

The Peer Assisted Learning (PAL) method is a good fit for students to discuss actively and cooperatively. Students in this study were assigned a senior student tutor, while the tutee was a more advanced student when it came to understanding anatomy. To put it another way, there was no effect of different teaching methods on the implementation of anatomy practicum, which means that academic standards were met by students in both groups based on the results of the pre-and post-tests using paired T-tests and Wilcoxon tests.

Students stated that the PAL method be applied to medical anatomy learning because, in this method, there are several skills exercises and applied knowledge that must be trained continuously, not just by reading and presenting the theory. The lecturer also stated that PAL be applied to various learning methods such as CSL. In its implementation, students stated that PAL requires development by utilizing technology, this is based on a very limited implementation time to gain more knowledge, so development is needed in the form of using technology.

The use of technology in the PAL learning method can utilize information technology (IT) tools to provide a very long time, cost-effective, easy to measure and expand access to learning training. The peer-assisted learning method has been used in the learning process at the Faculty of Medicine, Jendral Achmad Yani University, one of which is in the anatomy practicum, in implementing the PAL method, peer tutors, peer tutees, and lecturers know that PAL provides many good benefits. Peer tutors, peer tutors, and lecturers already know the definition and benefits of PAL well. Peer tutors, peer tutors and lecturers identify the factors that hinder and support the implementation of PAL. Both of these factors will affect the implementation of PAL. Participants hope to implement PAL in the future so that it can be carried out in CSL learning and make better use of technology (Diana, 2016; Ragazzoni et al., 2020).

**Table 4. Categories of perception statement Peer Assisted Learning**

Category Peer Tutor	Evaluation
Convenience	10
Learning Interaction	14
Interaction and cooperation	22
Communication relationship	19
Confidence	15
independence	12
Feedback accepted	14
Ability to answer questions	17
Anatomy theory and science	12
Take responsibility for yourself	15

Based on the table 4, it can be seen that the role of peer tutors is very helpful in learning because it facilitates communication during the anatomy practicum, but the process can still be improved in the future with several evaluations and improvements in certain parts. Evaluation is what is needed in the implementation of PAL. This is to find out whether the implementation has been going well or not, to increase the effectiveness of PAL in the medical faculty, several important aspects which include organizational issues, tutor selection, tutor training, and always evaluating every result that has been achieved. The lecturer stated that peer tutors must have good communication skills to deliver material so that peer tutors better understand what is explained by the peer tutor. This is supported by other research that states that communication between peers is supportive and enjoyable in PAL because it has more opportunities to share ideas and practise clinical techniques and share knowledge and skills with each other among these students.

**Table 5. The Role of Peer Assisted Learning (PAL) on Outcomes Anatomy Exam**

No	Determination of PAL Criteria	Percentage of Exam Assessment Results
1	Very low	12%
2	Low	10%
3	Currently	9%
4	Tall	12%
5	Very high	15%

It is clear from the data in the table 5 that the PAL method serves as an evaluation tool for the values developed and organized through the use of the Peer Assisted Learning method as a whole and influencing the evaluation of exam results and academic performance scores. Peer tutors, however, are not the only factor in determining whether or not a student passes the exam. Several factors, both internal (motivation, physical health, cognitive abilities) and external (learning materials, learning environment, infrastructure, human resources), can influence whether or not one passes an exam (Nurcahyo et al., 2015). As a result of this method's ability to cultivate interest in learning and its ability to foster freer, more comfortable, and more active communication in the classroom, students generally support the PAL method. Improved self-assurance in front of teachers. Motivate yourself to learn and improve your cognitive and social skills by using the PAL method. This method has been shown to bridge the gap between students' need to improve their academic values and social skills in various scientific fields.

## CONCLUSION

From the data presented, it is clear that, besides influencing the evaluation of exam results and academic scores, the PAL method serves as a material for evaluating values developed and organized through the use of the Peer Assisted Learning method generally. However, this does not mean that exam success is entirely dependent upon how well you do as a peer tutor. There are a number of factors that can affect whether or not you pass the exam, including both internal (such as motivation) and external (such as physical health and cognitive abilities) factors (Nurcahyo et al., 2015). Aside from this method's ability to cultivate high interest in learning and create a more open, comfortable and active learning environment, students in the anatomy practicum fully support the method. Self-confident to demonstrate their skills in front of their tutors The PAL method, in general, has the ability to motivate, develop cognitive abilities, and build social skills. Across a wide range of scientific disciplines, this approach has been shown to help students improve both their academic values and their social skills. From the data presented, it is clear that, in addition to influencing the evaluation of exam results and academic scores, the PAL method serves as a material for evaluating values developed and organized through the use of the Peer Assisted Learning method generally. This does not, however, mean that exam success is entirely dependent upon how well you do as a peer tutor. There are a number of factors

that can affect whether or not you pass the exam, including both internal (such as motivation) and external (such as physical health and cognitive abilities) factors (Nurchahyo et al., 2015). Aside from this method's ability to cultivate high interest in learning and create a more open, comfortable and active learning environment, students in the anatomy practicum fully support the method. Self-confident to demonstrate their skills in front of their tutors The PAL method, in general, has the ability to motivate, develop cognitive abilities, and build social skills. Across a wide range of scientific disciplines, this approach has been shown to help students improve both their academic values and their social skills.

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