

# INCORPORATION OF PEER ASSISTED LEARNING STRATEGIES ALONG WITH REVERSE MENTORSHIP FOR IMPROVEMENT IN SCHOLASTIC PERFORMANCE

## Abstract

Teacher-led didactic lectures have been the mode of imparting knowledge in academic institutions for as long as one can remember. This approach has very limited student interaction and does not have the element of feedback necessary for a student's overall development. Therefore, the concept of peer-assisted learning has been introduced and its incorporation has made education a student-driven process along with its numerous other advantages. The methodology of reverse mentoring wherein students also share their skill-set with their teachers also adds value to the learning process. Active participation in peer-assisted learning should be seen as complementary to teacher-led approaches and is crucial for medical colleges seeking to stay at the forefront of medical education.

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## I. INTRODUCTION

Traditional medical education is the most stressful and the teacher delivery of lectures is the most common educational strategy widely used in medical institutes across the world which has been long considered to be the best route to directly transfer knowledge to students. It has been argued that this teacher-led didactic strategy is limited in its approach as it is passive and has no student interaction. The didactic strategy involves minimal interaction and does not have the element of feedback which is very important in a student's overall development. With the ever-increasing classroom size, fewer teacher-student interaction has failed to initiate higher-order analytical thinking in students. Peer-assisted learning is defined as "the acquisition of knowledge and skill through active helping and supporting among status equals or matched companions.[1] This approach involves students working together in small groups to help each other learn and acquire new skills. Years since ten cate and Durrning have elaborated reasons for implementing peer teaching in curricula by suggesting that it provides [2] a safe educational environment similar level of motivation and cognitive level it has gained popularity.[3] It allows them to be modern-day doctors by developing leadership qualities.[4,5,6]. Peer-assisted techniques have been used to improve emotional and academic performance in various educational settings.

Most significant of all benefits of peer-assisted techniques in teaching and learning is that it makes them a stakeholder in learning allowing them to take ownership of their education. When students work in groups, they become more actively involved in the learning process, as they are encouraged to ask questions, share ideas, and collaborate with their peers. This approach fosters a sense of responsibility for learning among students, as they are not just passive recipients of knowledge but actively engaged in the acquisition of new skills and knowledge. Peer-assisted techniques in teaching and learning also provide an opportunity for students to develop their social and emotional skills. Through teamwork, students learn to communicate effectively and collaborate which leads to improvement in their social and emotional intelligence. Students feel a sense of connectedness as they develop leadership and mentoring skills as they help their peers learn

Another benefit of peer-assisted techniques in teaching and learning is that they provide a more personalized approach to education. In traditional classroom settings, teachers are often unable to provide individual attention to every student. Peer-assisted techniques enable students to work in small groups, which allows for a more personalized approach to learning. Students can work at their own pace, ask questions, and receive feedback from their peers, which can help them to better understand the material

Peer-assisted techniques promote a more inclusive approach to education. In traditional classroom settings, students who may be struggling with a particular subject or who have special learning needs may not receive the attention and support they need. Peer-assisted techniques provide an opportunity for students to work together and support each other, regardless of their abilities. This approach can help to build a more inclusive and supportive classroom environment.

Medical education has been criticized for its top-down approach with experienced professionals being the sole conveyer of knowledge. The newer Reverse mentorship breaks this hierarchical pattern in developing the knowledge and skills required in their professional

development and also allowing the students to have their share of insights and experiences. With technology driving education the engagement of the millennial in bridging the generational gap and seeking mutual benefits has been readily accepted. Reverse Mentorship abolishes this traditional hierarchy and reversal the roles between the mentor and mentee for collaboration.[7] Reverse mentorship promotes open and dynamic communication, fostering a collaborative relationship between students and faculty During the critical phase of studying medicine, students embark on a journey of acquiring fundamental knowledge and developing essential skills. Through this process, students can gain valuable mentorship from experienced physicians and learn about the non-academic aspects of medical practice, such as ethics, patient communication, and self-care. This comprehensive guidance promotes the development of crucial skills necessary for their future roles as healthcare providers. Reverse mentoring nurtures well-rounded medical professionals In today's rapidly evolving medical landscape, reverse mentoring can aid in keeping up with technological advancements. Younger students often possess a better grasp of cutting-edge technologies and can help older mentors adapt to new tools and practices. This collaboration ensures that the curriculum remains relevant and up to date, enhancing students' ability to navigate modern healthcare challenges. Medical school can be challenging, and the presence of a supportive network is crucial for student well-being. The limited resources and an overburdened faculty are the probable reasons why worldwide there is a growing interest in the abovementioned teaching-learning strategies. These methodologies not only foster collaboration and knowledge sharing but also create an inclusive learning environment that facilitates comprehensive understanding and professional growth. The above methodologies of learning create a sense of camaraderie, as not just students but even the faculty will collaborate, share their struggles, and support one another. This mutual encouragement fosters resilience, motivation, and a sense of belonging, leading to better academic performance and overall satisfaction. Students come from diverse backgrounds and possess unique experiences these types of strategies will leverage this diversity, allowing individuals to learn from their peers' perspectives and broaden their understanding of medical concepts. It encourages the exploration of multiple view points, leading to more comprehensive and well-rounded knowledge acquisition. Reverse mentoring and peer-assisted learning are instrumental in enriching the Phase 1 MBBS experience. By embracing these innovative methodologies medical institutions can create a dynamic learning environment that promotes collaboration, inclusivity, and acquisition of essential skills. Reverse mentoring bridges the generational gap, promotes technology adoption, and nurtures holistic development, while peer-assisted learning encourages active participation, peer support, and exploration of diverse perspectives. By incorporating these approaches into medical education, we can empower Phase 1 MBBS students to become competent, compassionate, and well-rounded professionals ready to meet the challenges of global medical demands.

In conclusion, the above-stated techniques can provide for increased student engagement, improved academic performance, and the development of social and emotional skills along with benefits to the faculty in learning skills and technologies to remain abreast. Though there is evidence proving the importance of PAL and Reverse mentoring in providing deeper learning and meaningful interactions among students in medical colleges there are very few quantitative statistical data on the effectiveness of these techniques either individually or together.

## **II. BRIEF HISTORY**

Peer-assisted learning (PAL) is a type of learning where students from the same program or social class not necessarily from the same level or acting as professional teachers in the program help each other to learn.[8]Peer-assisted learning provides active learning support from peers and promotes the development of new knowledge and skills. Students who are peers, not professional teachers, and who are also learning themselves through teaching constitute peer-assisted learning. [9,10].It is not a simple group activity or cooperative problem-solving in which peers are not directly teaching or assessing. [11]

PAL is based on the theories of social constructivism and cognitive congruence. [12,13] both of which involve the development of collaborative interaction.PAL proposes that students learn better from their peers in a social setting when they share a common goal.

In a study conducted by Ten Cate and Durning [14], they explained how peer-assisted learning can have a positive impact when studying with peers of a similar educational level through his cognitive congruence theory. When students of the same mental level address knowledge gaps amongst peers it is better understood than in teacher-directed learning. In a traditional classroom, a teacher may make incorrect assumptions about the students' knowledge which is critical for understanding students. This knowledge gap could influence the motivation of students to learn. The cognitive congruence hypothesis suggests that in a peer-peer learning community, students will be more open and less guarded as compared to a traditional teacher-led class. Cognitive congruence suggests that when students engage with other students who are struggling, they draw from a shared understanding of the material [15]. The Social congruence theory describes the process as a willingness to become involved with students for a common goal [16].

### III. REVIEW OF LITERATURE

- 1. Global Scenario:** Though there are multiple benefits of PAL, the usage of PAL in medical schools is limited. Lockspeiser et al. have highlighted the value of cognitive and social congruence in one medical school's supplemental peer-teaching program [17]. There has been a meta-analysis conducted by Balta where the effectiveness of PAL has been documented.[18]. There have been studies conducted which have proved a positive outcome of PAL in certain subjects across the medical curriculum.[19] There are obvious reasons for learning pedagogy to propose PAL since it promotes critical learning, exploration, and problem-solving in students.[20,21] A study conducted in Germany at the student-run free clinic of Goethe University showed that students performed better at theoretical and practical skills following PAL but clinical skills which were assessed using OSCE did not show any improvement.[22]This was contradicted by a study conducted by Bugaj where the performance in clinical skills demonstrated improvement following the use of student tutors rather than faculty.[23]Similar results have been documented in the post-test scores following the implementation of PAL for surgical courses using PAL methodology in phase 3 MBBS students by Benett.[24]
- 2. Indian Scenario:** The utility of PAL in Indian scenarios is also diverse. A study conducted by Awasthi and Yadav in the Department of Pediatrics showed improvement in the post-test results.[25]

In an interventional pilot study conducted in Northern India at the Department of Pathology, different modified interest-building activities like quizzes, prop demonstrations, seminars by students role plays, and case-based learning (CBL) exercises were utilized as a part of PAL T/L. The results of this study showed that greater curiosity was evoked when senior tutors were teaching the tutees and most students confirmed that PAL was indeed a very non-hostile environment to learn.[26]A study conducted by Divya et al found improved performance in the scores among Phase 1 MBBS students using near-peer teaching sessions.[27]

#### IV. DIFFERENT TYPES OF PEER-ASSISTED ACTIVITIES

Peer-assisted strategies in teaching and learning medicine have become increasingly popular in recent years as a means of enhancing student learning and development. Peer-assisted learning refers to any form of collaborative learning in which students work together to achieve common learning. The Association of Medical Education in Europe has identified 18 different types of learning strategies that can be led by peers such as peer appraisal, peer-assisted study, peer tutoring, peer teaching, etc.[28].Some of them are as below:

- 1. Peer Tutoring:** One of the most common forms of peer-assisted learning in medicine is peer tutoring. Peer tutoring involves more experienced students working with less experienced students to provide academic support and guidance. Peer tutors may help their peers with course content, study skills, and exam preparation. Peer tutoring can be a highly effective way to support student learning, as it provides students with personalized and targeted support from someone who has recently experienced the same challenges and difficulties.
- 2. Peer Observation:** Another type of peer-assisted learning in medicine is peer observation. Peer observation involves students observing each other's clinical skills and providing feedback and support. Peer observation can help to improve students' clinical skills and decision-making abilities, as well as enhance their ability to provide feedback and engage in reflective practice. Peer observation can also help to create a more supportive and collaborative learning environment, where students feel comfortable sharing their experiences and receiving feedback from their peers.
- 3. Peer Feedback:** Peer feedback is another type of peer-assisted learning in medicine. Peer feedback involves students providing feedback to each other on their clinical skills, academic performance, and professional development. Peer feedback can help to develop students' critical thinking skills, as they are encouraged to evaluate and provide constructive feedback on their peers' work. Peer feedback can also help to create a more supportive and collaborative learning environment, where students feel comfortable sharing their work and receiving feedback from their peers.
- 4. Peer Assessment:** Peer assessment is a type of peer-assisted learning in which students assess and evaluate each other's work. Peer assessment can be used to evaluate academic performance, clinical skills, and professional development. Peer assessment can help to develop students' critical thinking and communication skills, as they are encouraged to provide constructive feedback and evaluate their peers' work. Peer assessment can also

help to promote a sense of responsibility for learning among students, as they are encouraged to take an active role in assessing and evaluating their peer work.

5. **Team-Based Learning:** Team-based learning is another type of peer-assisted learning that is commonly used in medical education. Team-based learning involves students working in small groups to solve problems and complete assignments. Team-based learning can help to develop students' critical thinking, communication, and collaboration skills, as they work together to achieve common learning objectives. Team-based learning can also help to create a more interactive and engaging learning environment, where students are encouraged to take an active role in their learning.
6. **Simulation-Based Learning:** Simulation-based learning is another type of peer-assisted learning that is commonly used in medical education. Simulation-based learning involves students working together to practice clinical skills and decision-making in simulated clinical scenarios. Simulation-based learning can help to develop students' clinical skills and decision-making abilities, as well as enhance their ability to work collaboratively and communicate effectively in a clinical setting. Simulation-based learning can also help to create a more realistic and engaging learning environment, where students can practice clinical skills and decision-making in a safe and controlled setting.
7. **Near Peer Teaching:** Ten Cate and S. Durning also proposed a term called Journeymen for near-peer teachers as someone who is an intermediate between the two ends one of which is an 'apprentice' and the other end being a 'master'. The term 'near-peer-assisted learning' (NPAL), introduced by Whitman in 1988, is now often used interchangeably with the term 'peer-assisted learning' and refers to a trainee one or more years senior to another trainee on the same level.[30] A study conducted by Loda et al provided explanations of why Near peer teaching provides the best outcomes. It was suggested that proximity of age and experiences enable the senior tutors better appreciate the knowledge gaps of the juniors and target those gaps.[31] There are also possible benefits for the senior tutors, where they can fortify one's knowledge.[32] A randomized controlled trial was conducted to compare the effectiveness of quality of clinical skill training with PAL with that of teaching offered by Associate professors, the results were surprising wherein the peer tutors were not just proficient but at times better in teaching procedural skills.[33] The reasons for this could be that the peer tutors are a millennial generation and already an advanced beginner and tend to teach step by step whereas the associate professor is an expert who tends to have a more integrated approach.[34]

The very first mention of the term "mentorship" is seen in Homer's "Odysseus literature. When the King of Ithaca, Odysseus, went to fight in the Trojan War, the responsibilities of his kingdom and son were entrusted to a mentor who guided him in testing times.[35] Ziegler defines reverse mentorship, as the "reciprocal and temporally stable relationship between a less experienced mentor providing specific expert knowledge and a more experienced mentee who wants to gain this knowledge.[36] The association is symbiotic where the student who poses as a mentor develops clinical skills and the senior faculty who opt as mentees learn the technological skills. So, both seem to benefit from the association. Reverse mentorship is a relatively new concept that is gaining popularity in the workplace where senior executives are paired with younger ones who mentor them on topics such as technology and social media. Here the hierarchy is

flipped, with the younger employee taking on the role of the mentor and the senior executive becoming the mentee.

Though a lot has been mentioned regarding PAL and Reverse Mentoring, in a study conducted it was identified that relatively little focus was attempted on developing a qualitative understanding of the nature of learning within PAL as most of it was assumed based on post-intervention scores.[37] The utility of reverse mentorship has been studied largely in corporate settings but the same in medical settings remains under-tapped.

## V. MERITS AND DEMERITS

- 1. Merits of Peer-assisted Learning and Reverse Mentoring:** The fact that PAL promotes clinical reasoning, problem-solving, and knowledge acquisition by exploration rates it higher in terms of outcomes as compared to traditional pedagogy.[38,39]. Students find the PAL environment less judgemental and highly conducive so it is better accepted by the students. This also provides opportunities for networking within the class.[40]A study conducted by Hill et al even proposes the utility of PAL to explicitly explain hidden curriculum for better student engagement.[41] In other studies conducted the tutors were used as purveyors of the hidden curriculum as it fits the theories of situated learning such as Communities of Practice. [42,43]A newer terminology associated with PAL is Professional Congruence which is based on situated learning where students make sense of their learning experiences at medical school.[44]

Peer-assisted techniques in medical colleges can offer many benefits to students. One of the most significant benefits is that they provide an opportunity for students to learn from their peers who may have different experiences and perspectives. Peer-assisted learning can help to improve students' critical thinking skills, as they are encouraged to question each other's assumptions and evaluate different viewpoints. This approach can also help to deepen students' understanding of complex medical concepts, as they work together to apply theoretical knowledge to practical scenarios.

Peer-assisted techniques in medical colleges also provide an opportunity for students to develop their clinical skills. By working together on simulated or real clinical cases, students can practice communication, clinical reasoning, and decision-making skills, as well as gain experience in conducting patient assessments and providing care. This approach can help to prepare students for the challenges they will face in clinical settings, as well as improve their confidence and competence in dealing with patients.

A noted benefit of peer-assisted techniques in medical colleges is that they can promote a sense of community and collaboration among students. Medical education can be highly competitive and stressful, and students can often feel isolated and overwhelmed. Peer-assisted learning can help to create a more supportive and inclusive learning environment, where students can connect and share their experiences. This approach can also foster a sense of responsibility for learning among students, as they are encouraged to take an active role in supporting their peers.

Peer-assisted techniques in medical colleges can also offer benefits to faculty and institutions. By encouraging students to work together, faculty can create a more student-centered and interactive learning environment. This approach can also help to reduce the workload of faculty, as students take on a more active role in supporting each other's learning. Peer-assisted learning can also help to promote institutional goals such as inter professional collaboration and cultural competency, as students from different backgrounds and disciplines work together to achieve common learning objectives.

In today's rapidly changing technological landscape, senior faculty must keep up with the latest technological advancements.[45] This can be challenging, as technology is constantly evolving. Reverse mentorship provides an opportunity for senior faculty to learn from younger faculty or students who are tech-savvy and up-to-date with the latest technology. Reverse mentorship can create a culture of learning and growth within the organization. When senior faculty are open to learning from younger ones, it sends a message that everyone in the organization can learn from each other. This can create a more positive and supportive work environment. Reverse mentorship provides an opportunity for younger faculty or students to develop leadership skills. By mentoring seniors, they can take on a leadership role and learn how to communicate effectively and provide feedback. [45]The younger generation may have a different way of looking at things, and their perspective can be valuable in generating new ideas and approaches to problems. Similarly there are multiple benefits of reverse mentoring in medical colleges where a two-way learning process is established to attain a shared goal of mutual respect and collaboration, the more experienced specialists coach the less experienced specialists, while the juniors learn competencies required to practice, mid-career level mentors are taught future technology, narrows the generation gap. The mentor provides advice to the mentee, and the mentee gives the mentor new insight to stimulate growth and reflection in the mentor.

- 2. Demerits of peer-assisted learning and Reverse Mentoring:** Despite the proposed educational effectiveness by the General Medical Council of the UK, uncertainty prevails about the effectiveness of PAL as its impact on students' learning and assessment has not been qualitatively investigated.[46,47] There is supporting evidence that has reported contradictory reports on the outcomes of PAL intervention in the curriculum.[48]While there are benefits there are also several potential demerits, one of them being the risk of misinformation since the junior tutee is an advanced beginner he may not have as much experience as a professional teacher and this incomplete information may be passed on to the tutee. This can be especially problematic in fields such as medicine where incorrect information can have serious consequences. Students who act as tutors must be properly trained and have a thorough understanding of the subject matter.

Similarly in the PAL setting the group dynamics affects the learning state and create inequalities that dilute the effectiveness of peer-assisted learning. Differences in individual students' study habits and their social competence can prevent them from learning from others.[49]

PAL can create social inequalities especially for students who come from disadvantaged backgrounds as they may not have the same level of knowledge or experience as their peers, which can make it difficult for them to act as effective tutors.



This can lead to a situation where only certain students can benefit from PAL, while others are left behind. Educators need to ensure that all students have access to the resources and support they need to succeed in PAL.

Pal sessions can be time-consuming and may require a significant amount of preparation. Students who act as tutors may need to spend extra time studying and preparing lesson plans, which can take away from other academic or extracurricular activities. This can be especially challenging for students who are already struggling to balance their academic and personal lives.

Another potential demerit of PAL is that it may not be effective for all types of learners. Some students may prefer to learn in a more traditional classroom setting, with a teacher or professor leading the way. Others may prefer to work independently or may not benefit from the social interaction that PAL provides. Educators need to consider the learning styles and preferences of all students when implementing PAL.

PAL can also create a sense of competition among students, which can be counterproductive to learning. Students who act as tutors may feel pressure to outperform their peers or may become too focused on achieving good grades or evaluations. This can take away from the collaborative and supportive environment that PAL is meant to create.

Sometimes PAL sessions may lack accountability. Because students are working together in small groups, it can be difficult to monitor each student's progress or ensure that everyone is participating equally. This can lead to situations where some students are doing more of the work or are not held accountable for their creations.

Finally, PAL can be challenging for students who struggle with social anxiety or who are not comfortable working in groups. These students may find it difficult to speak up or ask questions in a group setting, which can lead to a lack of engagement and participation.

In conclusion, while there are some benefits to peer-assisted learning, there are also several potential demerits that must be taken into account. These include the risk of misinformation, social inequalities, time constraints, effectiveness for all learners, competition, lack of accountability, and challenges for students who struggle with social anxiety or group work. Educators must carefully consider these factors when implementing PAL and work to mitigate any potential negative effects.

- 3. Demerits of Reverse Mentoring:** Some senior faculty may be resistant to change, they may be comfortable with their current level of knowledge and may not see the need to learn new things. This can make it challenging to implement a reverse mentorship

There may be cultural differences between the mentor and mentee that can create challenges in the mentoring relationship. For example, the student may not feel comfortable providing feedback to a senior faculty, or the senior faculty may not be open to feedback from a younger one.

Reverse mentorship requires a significant time commitment from both the mentor and mentee. Seniors may have limited time due to their busy schedules, and younger students may have other responsibilities that make it difficult to commit to mentoring.

Reverse mentorship is most effective when the younger employee or student has specific skills that the senior faculty wants to learn. However, it can be challenging to find a younger faculty or student who has the necessary skills and is also interested in mentoring.

Reverse mentorship can create power dynamics that may be difficult to navigate. The senior faculty may feel uncomfortable taking direction from a younger faculty or student, or the younger faculty may feel intimidated by the senior faculty position.

## **VI. CHALLENGES IN IMPLEMENTATION**

Despite the many benefits of peer-assisted techniques in teaching and learning, there are also some challenges associated with this approach. One of the main challenges is ensuring that students are adequately trained to work in groups. Students may not have the necessary skills to effectively collaborate and communicate with their peers, which can lead to frustration and conflict. Teachers must provide training and support to help students develop these skills.

Another challenge associated with peer-assisted techniques in teaching and learning is ensuring that students are working at an appropriate level. Students who are more advanced in a particular subject may find it difficult to work with students who are struggling. On the other hand, students who are struggling may feel overwhelmed and discouraged if they are placed in a group with more advanced students. Teachers must carefully consider the needs and abilities of each student when forming groups.

Another challenge associated with peer-assisted techniques in medical colleges is ensuring that students are working at an appropriate level. Students who are more advanced in their studies may find it difficult to work with students who are earlier in their training. On the other hand, students who are struggling may feel overwhelmed and discouraged if they are placed in a group with more advanced students. Faculty must carefully consider the needs and abilities of each student when forming groups, and provide appropriate support and feedback to help each student achieve their learning objectives.

Finally, there is the challenge of ensuring that students remain focused and on-task when working in groups. Students may become distracted or disengaged if they do not feel motivated to work or if they are not interested in the subject matter. Medical education can be demanding and stressful, and students may struggle to maintain their motivation and engagement in group work. Faculty must provide clear instructions and expectations, as well as regular feedback and support, to ensure that students remain focused and motivated throughout the learning.

However, there are also some challenges associated with this approach, including the need for adequate training, ensuring that students are working at an appropriate level, and

ensuring that students remain focused and on-task. By carefully considering these challenges and providing the necessary support and guidance.

## VII. DISCUSSION

Peer-assisted learning (PAL) has been gaining popularity in recent years as a method of teaching and learning. In medical colleges, there is a paradigm shift in education methodology internationally from teacher-centric to more learner-centric methods, from passive to active learning, and also from individual to group learning, this is where the utility of PAL stems.[50] Newer techniques in PAL have students take accountability for their learning and become lifelong learners and are better able to identify their learning gaps.[51] Peer-assisted methodologies allow particular insights into how medical students make meaning from their experiences at medical school. For peertutors, an appreciation of the impact of camaraderie and shared experiences on teaching and learning may help them to cultivate more effective teaching and learning environments. From the faculty's viewpoint, social congruence may also be relevant as they are always on the look for tools to cultivate congruence between their students. The peerrelationship fosters a safe learning environment and is utilized for the development of medical humanities in the future. One of the main advantages of peer-assisted learning is that it can lead to improved learning outcomes. When students work together, they can share their knowledge and skills, provide feedback, and help each other to better understand the course material. This collaborative approach can enhance critical thinking, problem-solving, and communication skills, which are essential for success in any academic or professional setting. When students work together, they are more likely to be motivated and enthusiastic about the learning process. Peer-assisted learning can provide a more interactive and engaging learning environment, where students can actively participate in discussions, ask questions, and explore new ideas. Peer-assisted learning can also promote social interaction and diversity. When students work together, they have the opportunity to interact with peers from different cultural and socioeconomic backgrounds. This can help to broaden students' perspectives and promote understanding and tolerance. In addition, peer-assisted learning can help to create a more supportive and inclusive learning environment, where students feel valued. When students work together, they are more likely to take an active role in the learning process. This can help to promote deeper understanding and retention of the course material. Active learning can also help to develop important skills such as problem-solving, critical thinking, and communication.

Considering all the merits of PAL one of the potential disadvantages of peer-assisted learning is that students may lack expertise in certain areas. Peer tutors may not have the same level of knowledge and experience as professional instructors, which can limit their ability to provide accurate and comprehensive feedback. In addition, some students may be more advanced than others, which can create inequalities in the learning process. Peer tutors may have different teaching styles and approaches, which can make it difficult for students to develop a consistent understanding of the course material. In addition, peer tutors may not be able to provide the same level of support as professional instructors, which can limit the effectiveness of PAL. There is also a risk of misinformation in peer-assisted learning. Peer tutors may not have the same level of knowledge and expertise as professional instructors, which can lead to the dissemination of inaccurate or incomplete information. In addition, some students may be more prone to errors in judgment or misunderstanding, which can lead to further misinformation. Group dynamics can also be a potential challenge in peer-assisted

learning. Students may have different learning styles, personalities, and communication preferences, which can create tension and conflict in group settings. This can make it difficult for some students to participate in the learning process and may hinder the effectiveness of PAL

With the given background it should be considered as a supplementary tool rather than a substitute. Students can become lifelong learners and help reduce faculty load at the institute level.[52]Disproportionate learning can occur in the absence of faculty; this is one of the few understated benefits of PAL. [53]

In recent years, the concept of reverse mentoring has gained traction as an innovative approach to learning and growth in various fields where younger individuals are paired with more experienced professionals to exchange knowledge and perspectives. Reverse mentoring in medical colleges enables senior faculty members to tap into the expertise of younger generations, who are typically more adept at utilizing emerging technologies. By engaging in reverse mentoring relationships, medical professionals can enhance their digital literacy, learn about cutting-edge medical technologies, and adapt to technological advancements that have become integral to healthcare practices.

Medical colleges often have a diverse student population, representing various cultural backgrounds and perspectives. Reverse mentoring provides an opportunity for senior faculty members to learn from younger mentees about different cultural practices, beliefs, and healthcare preferences. This fosters cultural competence among medical professionals, enabling them to provide patient-centered care that respects and accommodates diverse backgrounds.

Younger generations often possess fresh perspectives and innovative ideas unburdened by traditional practices. Reverse mentoring encourages senior faculty members to embrace new ways of thinking, challenging conventional methods and fostering a culture of innovation within medical colleges. This dynamic exchange of ideas helps institutions adapt to evolving healthcare needs and develop novel approaches to patient care and medical education.

Reverse mentoring establishes a platform for meaningful intergenerational collaboration. By bringing together individuals from different age groups, medical colleges can bridge the generation gap and promote mutual understanding. This collaboration facilitates the transfer of knowledge, experiences, and skills, enriching the learning environment and fostering a sense of unity among faculty and students.[45] Healthcare today is shaped by an increasingly diverse patient population. Reverse mentoring equips medical professionals with the knowledge and insights necessary to understand and address the unique needs of different age groups. By engaging in reverse mentoring relationships, faculty members can gain valuable insights into the perspectives and expectations of younger patients, ensuring patient-centered care that meets the evolving demands of the healthcare landscape.

Reverse mentoring programs also provide opportunities for faculty members to enhance their teaching methodologies and stay abreast of the evolving learning preferences of younger generations. Mentees can share insights into effective teaching strategies, digital

tools, and interactive learning methods, enabling senior faculty members to deliver more engaging and impactful educational experiences.[45]

## VIII. CONCLUSION

In conclusion, peer-assisted strategies in teaching and learning medicine can offer many benefits to students, faculty, and institutions. These strategies can help to improve academic performance, develop clinical skills, promote professional development, and create a more supportive and collaborative learning environment. Active learning through peer-assisted learning should be seen as complementary to teacher-led approaches. Similarly, reverse mentorship has many benefits for both the mentor and mentee, including keeping senior executives up-to-date on technology trends, enhancing communication between generations, fostering a culture of learning and growth, helping younger employees develop leadership skills, and providing a different perspective. By harnessing the power of intergenerational collaboration medical colleges can create an environment that nurtures continuous learning and adaptability, preparing healthcare professionals to thrive in an ever-changing healthcare landscape. Embracing both PAL and reverse mentorship is crucial for medical colleges seeking to stay at the forefront of medical education.

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## INCORPORATION OF PEER ASSISTED LEARNING STRATEGIES ALONG WITH REVERSE MENTORSHIP FOR IMPROVEMENT IN SCHOLASTIC PERFORMANCE

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