

Microteaching Mastery: Elevating Postgraduate Medical Training

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ABSTRACT

Microteaching, a pedagogical tool initially developed for teacher education, has found its firm foothold in medical education training programs. This narrative review highlights its pivotal role, merits, demerits, and practical implications, particularly in postgraduate evaluations. Emphasizing lesson planning, presentation skills, and effective use of audiovisual aids, microteaching facilitates a deeper understanding of the teaching process and its complexities. Various studies have demonstrated its positive impact on teacher knowledge growth, confidence-building, and skill retention, while also promoting problem-solving, critical thinking, and reflective teaching. Beyond the health sciences, it is proven effective in subjects like mathematics. However, challenges persist, with time constraints during sessions and potential administrative bottlenecks when managing large classes. Despite these limitations, the importance of preparing postgraduate candidates for microteaching evaluations is undeniable, requiring a comprehensive understanding and practice of the core skills. The review concludes by advocating for a more widespread adoption and adaptation of microteaching techniques, particularly in regions like India, where its potential remains under-tapped.

Keywords: Challenges in implementation, Medical education, Microteaching, Pedagogical tool, Postgraduate evaluation, Reflective teaching, Skill development, Teaching techniques.

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INTRODUCTION

Pedagogy, Andragogy, and Heutagogy represent distinct approaches to teaching and learning, reflecting a progression from dependent to self-directed learning styles. Pedagogy, traditionally focused on children's learning, assumes a dependent learner who relies on the teacher for knowledge acquisition. In contrast, andragogy, concerned with adult learning, shifts toward an independent learner who seeks knowledge autonomously, guided more by an internal motivation stemming from personal or professional needs. Heutagogy further advances this model by emphasizing self-managed learning, where learners not only seek knowledge independently but also contribute to the learning process by utilizing their experiences, creativity, and ability to apply these skills in both familiar and novel situations.

In the context of Postgraduate Medical Education, particularly during examinations, understanding these learning theories becomes crucial. Postgraduate medical education typically involves adult learners, suggesting that Andragogical and Heutagogical approaches may be more effective. However, the examination setting, especially when focusing on microteaching skills, introduces unique challenges and opportunities. Microteaching, a teacher training technique, reduces the complexities of regular teaching to more manageable proportions, allowing educators to focus on honing specific skills. When applied to Postgraduate Medical Education, especially in examination settings, it is essential to tailor these techniques to meet the unique needs of adult learners. Given the andragogical and heutagogical context, several key points emerge:

- **Learner-centered approach:** Respecting that postgraduate medical students are adult learners, the session should focus on their experiences and existing knowledge. Integrating clinical cases or real-world scenarios where they can apply their knowledge makes learning more relevant and effective.

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- **Facilitating, not dictating:** The role of the examiner or teacher shifts from being a source of knowledge to a facilitator of learning. This change requires creating an environment of mutual respect, where learners feel valued and motivated to engage.
- **Critical thinking and problem-solving:** Encouraging learners to analyze, synthesize, and evaluate information, rather than just recalling facts, aligns with the adult learning principle of task or problem-centered learning.
- **Feedback and reflective practice:** Constructive feedback helps learners understand their strengths and areas for improvement. Encouraging self-reflection helps in internalizing what is learned and applying it to practice.
- **Autonomy and self-directed learning:** Allowing learners to have a say in their learning topics, pace, or methods fosters autonomy and motivation. This approach is particularly effective in heutagogical settings, where self-directed learning is key.

- **Collaborative learning:** Group discussions, peer-teaching sessions, and collaborative problem-solving exercises can enhance learning, drawing on the collective experiences and expertise of the group.
- **Application of learning:** Examiners should focus on how learners can apply theoretical knowledge in practical, real-world situations. This approach not only tests their understanding but also their ability to apply concepts in their medical practice.

In conclusion, adapting microteaching strategies to suit the Andragogical and Heutagogical contexts involves recognizing the autonomy, experience, and self-directed nature of adult learners, particularly in postgraduate medical education.¹ The examination should thus not only assess knowledge but also the ability to apply, analyze, and create based on this knowledge, fitting the advanced nature of their studies and practice.

INTRODUCING MICROTEACHING

The art of teaching is not just about transferring knowledge. It is a complex process that plays a crucial role in influencing learning outcomes. Evaluating the quality of a teacher is often based on the level of understanding students derive from the instruction. Classrooms, however, cannot solely serve as the primary medium for acquiring essential teaching skills. Training educators, especially in the medical field, poses a significant challenge. Fortunately, microteaching emerged about five decades ago to bridge this gap, offering a scientifically backed method for faculty training.²

Definition and basic concepts: Microteaching is a training methodology specifically designed to enhance teaching skills. It uses real-life teaching scenarios to nurture these skills, offering a deeper insight into the nuances of instruction.^{2,3} The stanford-developed microteaching technique follows a sequence: “plan, teach, observe, re-plan, re-teach, and re-observe.” This approach has become an integral component in 91% of on-campus clinical teaching development programs.⁴ By simplifying teaching elements, such as class size, content scope, and duration, the process becomes more focused and effective. In fact, most pre-service teacher programs actively use microteaching, noting marked improvements in instructional experiences. Ultimately, the end goal is effective student teaching, and microteaching offers the tools and practices to achieve this.

Efficient technique and effective teaching: Microteaching focuses on a concise lesson or concept and a smaller group of students, thus reducing the intricacies associated with broader teaching contexts. This scaled-down approach allows for immediate feedback post each session.⁵ Modern multimedia tools like audio–video recording devices further enhance the learning experience.⁶ While observing a colleague or learning through trial and error are common self-training methods, they have limitations. Microteaching, in contrast, systematically rectifies mistakes and reinforces solid teaching practices for both novice and experienced educators.⁷ Such an approach boosts self-confidence, elevates in-class teaching quality, and hones classroom management skills.

The Conceptual Framework

Microteaching in medical education: Traditional medical education largely focuses on transmitting factual knowledge, positioning teachers as the primary information source. However, traditional medical teacher training methods often fall short. Hence, the educational objectives are now pivoting toward being

more student-centric, measurable, relevant, and time-bound.⁸ Microteaching ensures thorough skill learning by providing opportunities for listening, observing, and practicing.

Implementation of microteaching in medical education: Recently, there’s been growing interest in incorporating microteaching techniques in Indian medical schools. Such training equips medical educators with valuable tools to hone their teaching abilities. This method aligns with the Skinners’ theory of operant conditioning, presenting a science-backed approach to teaching. The National Medical Council (NMC) emphasizes the importance of continuous training for medical educators, advocating for their sustained efficiency throughout their career.⁹ A consensus exists that the efficacy and competency of medical educators can be significantly enhanced through well-structured training programs.

Steps and requirements of microteaching: The microteaching process is split into three distinct phases: knowledge acquisition, skill acquisition, and transfer.¹⁰

1. **Knowledge acquisition phase:** This is a preparatory phase. Here, educators are trained in various teaching skills and components through lectures, discussions, and expert-led demonstrations.
2. **Skill acquisition or interactive phase:** In this phase, educators design a microlesson to practice the skills they have learned. Feedback from peers and colleagues aids in refining their teaching methods.
3. **Transfer phase:** Here, educators apply the skills they have acquired in the simulated teaching environment to real-world classrooms.

Ten Steps of a Microteaching Activity¹¹

1. **Orientation and presentation of demonstration lesson:** Initial introduction to the topic.
2. **Observation of the lesson and criticism:** Actively watching the lesson and providing constructive feedback.
3. **Creation of microteaching setting:** Designing a controlled teaching environment.
4. **Discussion of teaching skills:** Talking about various teaching methods and techniques.
5. **Selection of a particular teaching skill:** Choosing a specific skill to focus on.
6. **Preparation of the microlesson plan:** Outlining the lesson’s content and flow.
7. **Practice of teaching skill:** Implementing the chosen teaching technique.
8. **Feedback:** Gathering opinions and critiques post-lesson.
9. **Re-plan, re-teach and re-feedback, and repeat:** Using the feedback to adjust and refine the lesson, then teaching it again.
10. **Integration of skills in real teaching and improve performance:** Applying the refined skills in a broader teaching context to enhance overall educational outcomes.

Core Skills Applicable in Clinical Teaching

Microteaching techniques underscore the premise that teaching can be deconstructed, analyzed, and enhanced using a variety of foundational teaching tasks or skills. These tasks represent specific behaviors or actions by the educator that facilitate student learning, either directly or indirectly. The inception of microteaching identified roughly 20 teaching skills. Today, that number has grown to at least 37, if not more.¹² Highlighted below are some of these pivotal teaching skills:

Table 1: Key components and elements of core skills in medical education^{11,12}**A) Key components**

1. Relevance of contents
2. Logical organization of material
3. Short, focused duration
4. Implementing core teaching skills
5. Presentation and explanation: Here, clarity and comprehension are paramount. This skill envelops:
 - Fluency in delivering content
 - Clarity and understanding
6. Teacher enthusiasm and engagement
7. Planned repetition for reinforcement
8. Effective beginnings and conclusions
9. Illustrating with examples: Educators should proficiently elucidate concepts using simple, pertinent, and engaging examples to amplify student comprehension. This skill embodies:
 - Continuity in explanation
 - Use of relevant, interesting examples
 - Appropriate media selection for illustration
10. Reinforcement: A skill designed to boost student participation throughout the teaching process, it comprises:
 - Positive verbal cues and affirmations
 - Positive non-verbal cues
 - Prompting and encouraging responses
 - Repeating and rephrasing for clarity
11. Stimulus variation: To captivate and maintain student attention, effective components include:
 - Integrating movements and gestures
 - Modulating speech patterns
 - Varying interaction styles
 - Pausing and visual switching
12. Probing questions: This skill fosters an environment where students can pose structured inquiries and seek clarifications.

B) Key elements include

1. Prompting critical thinking
2. Seeking further information from students
3. Refocusing discussions and inquiries
4. Elevating critical awareness
5. Classroom management: Effective management skills ensure a conducive learning environment. This encompasses:
 - Establishing classroom behavioral norms
 - Giving clear and concise directions
 - Maintaining visual contact with students
 - Addressing students by name
6. Using audiovisual aids: In the digital age, leveraging multimedia tools is invaluable. Essential components of this skill are:
 7. Neatness and organization of aids
 8. Readability of content
 9. Ensuring adequate size of letters and spacing
10. Appropriateness and relevancy of aids

Lesson planning: This skill revolves around the preparation of a succinct microlesson. It emphasizes logical sequencing, concise and relevant content, and adherence to the specified duration. [Table 1](#) illustrates the essential components and elements of core skills relevant to medical education. In essence, these core skills, along with their individual components, form the backbone of microteaching, guiding educators in delivering effective lessons and enhancing the overall learning experience.

Impact of Microteaching: Merits and Demerits

Microteaching, a scaled-down instructional methodology, has made its mark in educational training programs, especially in medical and health sciences. It has been widely acclaimed for its

capability to simplify the complexities of the teaching process and help teachers refine their skills. However, like any technique, microteaching comes with its own set of advantages and disadvantages.

Merits of Microteaching¹³⁻¹⁵

- **Enhanced understanding of teaching process:** Microteaching allows educators to grasp the intricacies of teaching through practical application. It fosters the development and refinement of teaching skills, turning complex topics into understandable units.
- **Increased confidence and personality development:** The “teach, critique, re-teach” model has been acknowledged for

its role in personality development and confidence building of health professionals.

- **Effective skill development:** Microteaching focuses on problem-solving, critical thinking, questioning, and reflective thinking, improving learning through practical applications.
- **Positive feedback mechanism:** The method ensures immediate feedback, allowing for timely rectification and improvement in teaching methods. This feedback loop is particularly beneficial for novice teachers.
- **Broader application:** Beyond the realm of medicine and health sciences, microteaching has shown efficacy in subjects like mathematics, outperforming traditional teaching techniques.
- **Reduction in anxiety:** For many educators, the prospect of teaching can be daunting. Microteaching, with its small-scale approach, helps alleviate some of this anxiety, creating a more conducive learning environment.

Demerits of Microteaching¹⁵⁻¹⁷

- **Time constraints:** One of the primary challenges faced in microteaching is the limitation of time. Often, not all skills are practiced, nor are all participants given the chance for re-planning and re-teaching, making the training less effective.
- **Content neglect:** There's a tendency to focus more on the delivery technique rather than the content, which can sometimes detract from the primary goal of teaching.
- **Skill dependency:** An over-reliance on a particular set of skills can make the teaching process rigid and less adaptable to different learning environments.
- **Logistical challenges:** Implementing microteaching in large classes presents administrative and logistical problems. Though this can be mitigated by departmental level sequences, it still remains a concern.
- **Under-utilization in some regions:** In countries like India, despite its potential, microteaching remains under-utilized, largely due to misconceptions or lack of awareness about its benefits.

While microteaching offers a plethora of benefits, ranging from skill development to increased confidence, it is not devoid of challenges. It is crucial to approach this technique with a balanced view, integrating its advantages while being mindful of its limitations. Proper implementation, paired with a thorough understanding of its intricacies, can make microteaching a potent tool in the realm of education and training.

ADVICE ON PREPARING AND ACTING DURING THE EVALUATION OF MICROTEACHING SKILLS DURING POSTGRADUATE EXAMINATION

Thorough Preparation

- **Understand the objective:** Familiarize yourself with the goals and objectives of the microteaching session. Know what skills or topics you are expected to demonstrate.
- **Content mastery:** While microteaching focuses on teaching techniques, it is essential to have a firm grasp of the subject matter you'll be presenting.
- **Practice:** Repeatedly practice your lesson plan. This will not only help in content delivery but also boost your confidence.
- **Feedback:** Before the examination, conduct a mock session and invite peers or mentors to provide feedback. Implement constructive criticisms to refine your technique.

Planning the Session

- **Lesson plan:** Create a concise and clear lesson plan. It should detail the topic, objectives, methodologies, and the expected outcomes.
- **Time management:** Ensure that your content fits the time slot allotted for the microteaching session. Practicing with a timer can help.
- **Materials:** Prepare any teaching aids, visual aids, or props you intend to use. Ensure they are relevant and enhance your teaching rather than distract.

During the Session

- **Start with confidence:** Begin your session with a brief introduction about the topic and what the learners can expect.
- **Engage the audience:** Use questioning techniques, real-life examples, or brief activities to engage your learners actively.
- **Use varied teaching techniques:** Depending on the topic, use a mix of lectures, discussions, demonstrations, or group work.
- **Monitor your pace:** Be mindful of your speaking speed. Ensure you're neither too fast nor too slow, and pause occasionally to allow learners to process the information.
- **Maintain eye contact:** This creates a connection with your audience and keeps them engaged.

Receiving Feedback

- **Stay open:** Understand that feedback is a crucial part of the microteaching process. Accept it with grace, whether positive or constructive.
- **Take notes:** As the examiner provides feedback, jot down key points. This shows attentiveness and a willingness to improve.
- **Ask questions:** If something is not clear, ask for clarification or examples.

Post-session Reflection

- **Self-assess:** After the session, take a moment to reflect on what went well and what could have been better.
- **Implement feedback:** Use the feedback from the examiner as a learning opportunity. Implement it in your future teaching sessions.

General Tips

- **Dress appropriately:** Your attire should be professional and appropriate for the teaching environment.
- **Stay calm and composed:** It is natural to feel nervous, but deep breaths and visualization techniques can help in calming nerves.
- **Be Genuine:** Authenticity in teaching is valued. Be yourself and let your passion for the subject and teaching shine through.

The evaluation of microteaching skills during a postgraduate examination is an opportunity to showcase our teaching prowess and understanding of the subject. Preparation, practice, and a positive attitude are key. Embrace feedback as a path to growth and remember that this is a learning experience that will only enhance our teaching capabilities.

INCORPORATING THE MICROTEACHING EVALUATION PROCESS DURING POSTGRADUATE MEDICAL EXAMINATIONS

In the realm of medical education, microteaching stands as a pivotal tool for enhancing teaching efficacy. To ensure that the

Table 2: Microteaching evaluation form

<i>Name of presenter</i>		
	Rough Notes	
Criteria	Rating (1–5)	Comments
Organization of content	1 2 3 4 5	
Clarity of presentation	1 2 3 4 5	
Communication (voice, eye contact, etc.)	1 2 3 4 5	
Interactions with students or audience	1 2 3 4 5	
Use of overheads, board, or computer aids (visual, audio, demonstrations)	1 2 3 4 5	
Overall effectiveness	1 2 3 4 5	
Other aspects (specify)		
General comments		
Rating scale		
Poor – needs much improvement		
Ok – quite good, improvement possible		
Excellent - little or no room for improvement		

process of microteaching evaluation is both systematic and fruitful, it is imperative to adhere to a well-structured protocol. Before commencing the presentation, evaluators should be provided with the “Microteaching Evaluation Form.” This step serves dual purposes: firstly, it prepares the evaluators for what they should be attentive to, allowing them to provide objective and structured feedback. Secondly, it ensures that the feedback received post-presentation is organized and actionable, aiding in the continuous improvement of the presenter. In Table 2, the “Microteaching Evaluation Form” is designed to capture the feedback on the microteaching session of the presenter. Each criterion is given a rating from 1 to 5, followed by a section for comments to provide detailed feedback. There’s also space for rough notes and other specific aspects that might need evaluation.



It is crucial to remember, especially in an examination setting, that the responsibility lies with the examinee to request examiners to don the hat of an evaluator. Examiners, being seasoned professionals, might instinctively slip into a passive observer’s role during the presentation. Thus, by explicitly asking them to evaluate, the examinee ensures active engagement, leading to a more in-depth analysis of their teaching skills.

Furthermore, at the beginning of the presentation, it is beneficial to clearly state the educational phenotype of the attendees. By doing so, the presenter acknowledges the diverse learning needs and backgrounds of the audience. This not only sets the stage but also ensures that the presentation is tailored to the audience’s level of expertise and understanding. For instance, a presentation designed for medical students in their early years would differ considerably from one aimed at seasoned practitioners. By being aware and responsive to the attendees’ educational phenotype, presenters can make their session more impactful and relevant. In conclusion, for microteaching to truly serve its purpose in medical education, especially in an examination environment, it is essential to approach the process with meticulous planning and active engagement from both the presenter and the evaluators.

CONCLUSION

Microteaching stands as a pivotal tool in medical education, refining teaching techniques and boosting educator confidence. While its merits in enhancing problem-solving, critical thinking, and interactive teaching are numerous, challenges like time constraints and logistical issues persist. However, with thorough preparation, engagement techniques, and open receptiveness to feedback, postgraduate candidates can navigate microteaching evaluations successfully. Embracing this teaching methodology not only demonstrates teaching prowess but also enriches the educational landscape, creating a ripple effect of enhanced learning experiences for all involved.

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