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IAP MEC Textbook of Medical Education Technology



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CHAPTER 10

Large Group Teaching

Joseph John

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INTRODUCTION

Large-group teaching is a cornerstone of education in many disciplines, particularly in higher education settings such as medicine, law, and engineering. With the growing demands on educational institutions to accommodate large cohorts of students, the traditional lecture remains a prevalent teaching format. Despite the challenges associated with extensive group teaching—such as maintaining engagement and ensuring comprehension—numerous strategies can be employed to enhance learning outcomes. Over the past three decades, significant advancements in pedagogical techniques and technology have transformed how large groups are taught, moving away from purely didactic lectures to more interactive and student-centered learning experiences.[1,2]

This chapter explores the various dimensions of large-group teaching, including its characteristics, advantages, and challenges. It also provides practical strategies for enhancing the effectiveness of large-group instruction by incorporating active learning, technology integration, and innovative classroom models such as the flipped classroom. Finally, we look at the future trends in large-group teaching, considering the rise of digital tools and online platforms that enable more personalized and interactive learning even in large settings.

CHARACTERISTICS OF LARGE GROUP TEACHING

Definition and Context

Large-group teaching is typically characterized by a lecture format, where a single instructor delivers content to a large audience, often ranging from 50 to several hundred students. This format is widespread in foundational courses within disciplines such as science, engineering, and medicine, where a standardized body of knowledge is essential for all students.[3] Despite criticisms that large group lectures are passive and lack interaction, recent innovations have sought to make this format more engaging.[4] Developing active learning strategies and integrating digital tools have helped shift the focus from a purely teacher-centered approach to a more interactive and collaborative one.

LEARNING ENVIRONMENTS

Large lecture halls' physical and social dynamics often characterize the learning environment in large group settings. Large class sizes make it difficult for instructors to personalize their teaching or gauge individual student understanding. This can result in a more passive learning experience, where students listen and take notes without active engagement.[5] However, educators have recognized these limitations and have increasingly focused on creating

environments that support interaction through technology and structured group activities.[6] For instance, large lecture halls are being redesigned to include flexible seating arrangements, allowing small group discussions among the learners. Many classrooms are now equipped with technology such as clickers and interactive whiteboards to facilitate student participation.[7]

ADVANTAGES OF LARGE GROUP TEACHING

Efficiency and Accessibility

One of the primary advantages of large-group teaching is its efficiency. A single lecture can reach hundreds of students at once, making it a time- and cost-effective method for disseminating information. This is particularly beneficial for institutions with limited resources, where offering smaller, more personalized classes may not be feasible.[8] Large-group teaching also ensures that all students receive similar core content, contributing to educational consistency and standardization. This is especially important in professional fields where students must master a specific body of knowledge.[9]

Moreover, large-group teaching promotes accessibility by allowing more students to access quality instruction simultaneously. High-demand courses must often accommodate large enrolments, making large-group teaching the only practical option. This format can also enable students from diverse backgrounds to engage with the content at the same level from the same instructor, helping to level the playing field.[10,11]

Standardization of Content and Teaching Quality

Using standardized materials, such as recorded lectures, slides, and readings, can enhance the quality of teaching, ensuring that all students are exposed to the same high-quality resources.[12]

Additionally, the standardization of content in large-group settings allows for aligning learning outcomes with assessments, which is critical in fields where students must demonstrate proficiency in specific competencies.[13] Large-group teaching also supports using technology to deliver preprepared, high-quality lectures, ensuring that instructors deliver consistent content to all students.[14]

Cost-effectiveness

From an institutional perspective, large-group teaching is often more cost-effective than smaller, seminar-based formats. It requires fewer instructors and a single classroom space, which can significantly reduce the overall cost of education.[15] This is especially important in public institutions or large universities where funding may be limited. In addition, large-group teaching often allows institutions to make better use of their facilities by scheduling multiple large lectures in the same space throughout the day.[16]

CHALLENGES OF LARGE GROUP TEACHING

Student Engagement and Attention

One of the most significant challenges of large-group teaching is keeping students engaged. Research shows that attention spans in lectures wane after 10–15 minutes, making it difficult for students to retain information during a typical 60- to 90-minute session.[17] The passive nature of traditional lectures can further exacerbate this issue, as students may struggle to maintain focus without opportunities for active participation.[18]

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Many instructors use interactive learning techniques to address this challenge, such as incorporating discussions, polls, and problem-solving activities into their lectures. These strategies help reengage students regularly, increasing their focus and retention.[19] For example, audience response systems, or "clickers," have improved student engagement by allowing them to answer questions and participate in real-time discussions during the lecture.[20]

Lack of Interaction

Another challenge of large-group teaching is the limited opportunity for interaction between students and instructors. In smaller classes, students can ask questions, engage in discussions, and receive personalized feedback. However, these opportunities are often scarce in large groups, leaving students to navigate the material independently.[21] This lack of interaction can hinder students' understanding of the content, as they may not have the chance to clarify concepts or ask for help.[22]

Many educators have begun incorporating peer learning strategies into large-group settings to overcome this issue. For example, students may be asked to discuss questions or problems in small groups before sharing their answers with the larger class.[23] This approach fosters interaction and encourages students to take responsibility for their learning.

Diverse Learning Styles

In large-group settings, instructors often struggle to accommodate their students' diverse learning styles. While some students thrive in lecture-based environments, others may struggle to absorb information without more interactive or hands-on learning experiences.[24] In addition, large-group lectures often rely heavily on auditory learning, which may not suit visual or kinesthetic learners.[25]

To address this challenge, many instructors incorporate various teaching methods into their lectures, such as using visuals, videos, and hands-on demonstrations to supplement traditional lectures.[26] This approach helps cater to students' diverse learning preferences and ensures that all students can engage with the material in a way that suits their needs.

Assessment and Feedback

Assessing student learning in large group settings is challenging, particularly when providing personalized feedback. In large classes, instructors may struggle to keep track of individual students' progress, making it difficult to provide timely and meaningful feedback.[27] In addition, traditional assessment methods, such as multiple-choice exams, may not fully capture students' understanding of the material.[28]

To address these challenges, many educators use technology to facilitate assessment and feedback in large group settings. For example, online quizzes and assignments can provide immediate feedback to students, allowing them to assess their understanding of the material in real time.[29] In addition, automated grading systems can help instructors manage the workload of large classes while still providing valuable feedback to students.[30]

STRATEGIES FOR ENHANCING LARGE GROUP TEACHING

Active Learning Techniques

Active learning techniques have improved student engagement and learning outcomes in large group settings. These techniques encourage students to actively participate in learning rather than passively absorbing

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information.[31] Examples of active learning techniques include think-pair-share activities, in-class problem-solving exercises, and audience response systems.[32]

Research has shown active learning techniques can lead to better learning outcomes than traditional lecture-based approaches. For example, a study by Freeman et al. (2014) found that active learning increased student performance in science, technology, engineering, and mathematics (STEM) courses by as much as 6%.[33] This is particularly important in large group settings, where keeping students engaged and motivated can be challenging.

Technology Integration

Technology plays a crucial role in enhancing the effectiveness of large-group teaching. Tools such as audience response systems, learning management systems (LMS), and lecture capture technologies have become increasingly popular in large-group settings.[34] These tools facilitate interaction and engagement and allow students to review content at their own pace, reinforcing learning outside the classroom.[35]

For instance, audience response systems (e.g., clickers) allow students to answer questions during the lecture, providing immediate feedback to both the instructor and the students.[36] This helps instructors gauge students' understanding of the material in real time and adjust their teaching accordingly. Similarly, lecture capture technology enables students to review lectures after class, which is particularly helpful for students who may have difficulty keeping up with the pace of the lecture.[37]

Flipped Classroom Model

The flipped classroom model has recently gained popularity as an alternative to traditional lecture-based teaching. This model introduces students to the course material before the lecture through prerecorded videos, readings, or other resources.[38] The lecture time is then used for more interactive activities, such as discussions, problem-solving, or Q&A sessions. This approach shifts the focus from passive learning to active engagement, allowing students to apply what they have learned meaningfully.[39]

The flipped classroom model has improved student engagement and learning outcomes in large group settings. For example, a study by O'Flaherty and Phillips (2015) found that students in flipped classrooms performed better on assessments and reported higher satisfaction levels than traditional lecture-based courses.[40]

FUTURE TRENDS IN LARGE GROUP TEACHING

As technology continues to evolve, the future of large-group teaching will likely be shaped by new digital tools and platforms that enable more personalized and interactive learning experiences. For example, adaptive learning technologies, which use data to tailor instruction to individual students' needs, can transform large-group teaching by providing personalized learning pathways for each student.[41] Similarly, the rise of online learning platforms, such as massive open online courses (MOOCs), has made it possible to reach even larger audiences while providing interactive and engaging learning experiences.[42]

In addition, there is growing interest in using artificial intelligence (AI) in education. AI-powered tools, such as chatbots and virtual tutors, can provide personalized feedback and support to students in large group settings, helping to bridge the gap

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between students and instructors.[43] As these technologies continue to develop, they have the potential to revolutionize large-group teaching by making it more efficient, interactive, and personalized.

However, every new tool has pros and cons. The introduction of AI for large-group sessions can upgrade the academic connection between instructor and learner, but it will also limit human engagement and linking, so a word of caution. We need to think more in this context, too.

CONCLUSION

Large-group teaching remains a key component of higher education, particularly in fields where large cohorts of students must master a standardized body of knowledge. While this teaching format presents challenges, such as maintaining student engagement and providing personalized feedback, numerous strategies can enhance its effectiveness. By incorporating active learning techniques, leveraging technology, and adopting innovative teaching models like the flipped classroom, educators can create more interactive and engaging learning experiences in large group settings. As technology continues to evolve, the future of large-group teaching will likely be shaped by new digital tools that enable more personalized and adaptive learning.

KEY POINTS

- Large group teaching is critical in higher education for disseminating standardized knowledge to large cohorts but faces challenges such as student engagement and personalized feedback.
- Active learning techniques (e.g., think-pair-share, peer instruction, and flipped classroom) foster interaction and student participation.
- Tools such as clickers, multimedia, and learning management systems enable dynamic and inclusive learning experiences.
- Innovations such as adaptive learning and artificial intelligence promise personalized and efficient teaching in large group settings.
- Evidence-based strategies and technological advancements ensure engaging and impactful large group instruction.

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The *IAP MEC Textbook of Medical Education Technology* is a concise, India-centric resource for all medical teachers and aspiring educators across disciplines, with special relevance for pediatricians and those engaged in training activities. Structured into foundational concepts, teaching–learning methods, comprehensive assessment strategies, and contemporary themes, it integrates competency-based education, systems thinking, and institutional roles such as Medical Education Units. Practical chapters on small and large group teaching, workplace-based assessment, mentoring, feedback, and reflection are tailored to busy Indian medical colleges. The book also addresses online education, simulation, scholarship, and a dedicated chapter on artificial intelligence in medical education, highlighting emerging tools for personalized, ethical, and effective learning. Ideal for faculty development, training programs and workshops, and self-directed upskilling, it bridges theory and practice to strengthen the quality of medical teaching nationwide.



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ISBN 978-93-7545-718-3