Education Section

Introducing Electronic Question Banks in a Medical College: The Need and the Plan

SAURABH RAMBIHARILAL SHRIVASTAVA[1], PRATEEK SUDHAKAR BOBHATE[2], HARSHAL GAJANAN MENDHE[3], YUGESHWARI TIWADE[4]

INTRODUCTION

As medical education continues to evolve each day, the assessment of the knowledge domain occupies a key role in the process of producing competent medical graduates [1]. There is an immense need to assess medical students' intellectual abilities, critical thinking, and problem-solving attributes, which go beyond testing recall skills [1]. Teachers must assess the ability of students to apply their knowledge in clinical practice (higher-order thinking skills) [1,2]. Conventional print-based assessments have been in use for decades, but with time, multiple shortcomings of such assessments, like the absence of multimedia elements, difficulty in evaluating answers, and wastage of papers, have surfaced. This has encouraged medical educators to opt for innovative solutions [3]. Electronic Question Banks (EQBs) have the potential to measure higher-order cognitive skills because they allow for the inclusion of different types of questions, including case-based scenarios, and the incorporation of interactive and multimedia elements, which are crucial for effective clinical decision-making [4].

DISCUSSION

Shift from Traditional to Electronic Question Bank (EQB): The Need

The EQBs have emerged as one of the versatile tools to assess the ability of medical students to integrate, analyse, and synthesise new information [5]. Considering that the medical field continues to change rapidly, EQBs offer a platform for teachers to update the educational content and accordingly prepare students for recent developments [6,7]. The most important benefit of these EQBs is that they ensure that students can access questions anytime, at any place, and thus continue their learning at their convenience [5]. Furthermore, as students can control their learning, they become self-directed learners, which has been strongly advocated by medical educators worldwide. Additionally, teachers can include different multimedia elements or simulations, which, in turn, enhance student engagement and promote active learning [7].

The inclusion of specific settings in EQBs can help medical students access particular types of questions that are suitable for their learning styles [8]. These banks generally consist of a wide range of questions, such as multiple-choice questions, long-answer questions, case-based scenarios, and very short answer questions, providing students with a holistic assessment experience [6,7]. At the same time, teachers can categorise questions in EQBs under different categories, such as must-know/nice-to-know/desirable-to-know or questions with easy, moderate, and high difficulty levels. Based on the student or the nature of exams, a specific number of questions from each category can be selected [4-6]. Furthermore, these platforms can simulate exam conditions, preparing students for high-stakes assessments by familiarising them with digital assessments [6]. Additionally, EQBs can eliminate printing costs,

making them not only cost-effective but also eco-friendly, thereby reducing paper use [3].

The benefit of these electronic platforms is that they can generate data analytics, providing significant insights into the strengths and weaknesses of medical students, helping teachers to implement targeted interventions [3]. Students can efficiently use these EQBs for revision, improving their overall retention of knowledge [4]. As these platforms are technology-driven, there is definite scope for global educators and students to collaborate and share resources [4]. Moreover, EQBs help students enhance their technological skills, preparing them to stay abreast of technological trends [3,4]. There is potential to integrate these EQBs with the Institution's learning management system, significantly reducing administrative burden and improving overall efficiency. Furthermore, students can receive immediate feedback about their performance, allowing them to rectify their mistakes [9].

Development and Implementation of EQBs

The development process of EQBs in a medical college must be carried out systematically to ensure that students benefit optimally [3]. This should begin with performing a thorough needs assessment, where both students and teachers are approached to determine the scope and content of EQBs. After conducting the needs assessment, the learning objectives and outcomes for EQBs need to be defined, ensuring that the questions included in EQBs align with the overall medical curriculum [7,8]. Furthermore, the questions included must be appropriate for the level of medical students and should cover all core competencies [6]. Additionally, these questions should be of various types, such as multiple-choice questions, case-based scenarios, short answer questions, essays, and concise answer questions, targeting both recall and problem-solving abilities to accommodate students with different learning preferences and styles [7,8].

Both teachers and students should be trained on the features, ways to access them, and best practices to empower them and minimise the possibility of unnecessary glitches or concerns [4]. It is advisable to conduct a pilot test with a small number of students and then gather their feedback on different aspects to assess the utility and effectiveness of EQBs [9]. Based-on the feedback received, the question bank should be improved, and this cycle should be continuous to ensure continuous enhancement and alignment with advances in the medical curriculum [9]. The Institution can explore the possibility of integrating EQBs with the learning management system to track students' progress at the central level. Additionally, a monitoring and evaluation system, including a quality assurance system, can be implemented to gather details about usage patterns and student performance, enabling the implementation of corrective measures as needed [3,4].

The Institution must establish a strong technological infrastructure, including a secure platform that is compatible with different devices

to ensure user-friendliness [5]. Additionally, the user interface should be visually appealing to enhance the overall experience for students. Robust security features should also be incorporated to safeguard the content and user data [5]. Furthermore, a support system, such as a helpdesk, should be established to address technical glitches, clarify user queries, and support both students and teachers in maximising the benefits of EQBs. Subsequently, the institution should plan to expand EQBs to ensure that the benefits reach a greater number of students and that the questions included in EQBs meet the evolving educational requirements [4-6]. Finally, the Institution should develop a strategy to promote the adoption of EQBs within different departments [3,4].

CONCLUSION(S)

The presence of EQBs in any Medical Institute can transform the way assessments are conducted, especially considering their benefits in terms of enhancing accessibility and engaging students with different learning styles. This necessitates every Medical College to explore and implement EQBs within their set-up to benefit students across all phases and prepare them for future clinical practice.

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PARTICULARS OF CONTRIBUTORS:
1. Deputy Director (Research and Development), Off Campus, Datta Meghe Institute of Higher Education and Research, Professor, Department of Community Medicine, Datta Meghe Medical College, Nagpur, Maharashtra, India.
2. Additional Professor, Department of Community Medicine, All India Institute of Medical Sciences, Vijaypur, Jammu and Kashmir, India.
3. Professor and Head, Department of Community Medicine, Datta Meghe Medical College, Nagpur, Maharashtra, India.
4. PhD Scholar, Department of Pathology, Jawaharlal Nehru Medical College, Wardha, Maharashtra, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Saurabh Rambiharilal Shrivastava,
Professor, Department of Community Medicine, Datta Meghe Medical College,
Off Campus Centre of Datta Meghe Institute, Nagpur-441110, Maharashtra, India.
E-mail: drshrishri2008@gmail.com

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