# ONLINE OPEN-BOOK ASSESSMENT AS A REVISION STRATEGY IN UNDERGRADUATE FORENSIC MEDICINE EDUCATION

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**Abstract**

Background: Knowledge retention remains a major challenge in undergraduate medical education. Formative digital assessments can enhance learning, yet the impact of online open-book strategies requires rigorous evaluation to support sustainable digital education and inclusive, flexible learning models. This study investigated the efficacy of an online open-book assessment as a revision tool in undergraduate Forensic Medicine at AIIMS Bibinagar, addressing the pedagogical transformation of medical assessment. Methodology: A comparative, non-randomized educational intervention was conducted with a sample of 78 second-year MBBS students (intervention group, n=41; closed-book control group, n=37) covering the topic of drowning. The intervention group completed an online open-book assessment using 10 pre-validated and pre-tested multiple-choice questions, while the control group completed a closed-book assessment. Learner perceptions were evaluated using a pre-validated and pre-tested Likert-scale questionnaire (Cronbach's alpha = 0.84, established via pilot testing and expert review) with a 95.1% response rate. Data analysis utilized median scores accompanied by interquartile ranges (IQR) and inferential statistics (Mann-Whitney U test). Results: The intervention group achieved a significantly higher median examination score of 9.0/10 (IQR = 8.0–10.0; 34.7% achieving a perfect score) compared to the closed-book control median of 6.0/10 (IQR = 5.0–7.5; $p < 0.001$, Mann-Whitney U = 312.5). Furthermore, 97.4% of intervention participants scored above 50%, compared to 70.3% in the control group. Questionnaire feedback revealed overwhelmingly positive median perception scores (4.5/5.0, IQR = 4.0–5.0), with students reporting enhanced active learning, reduced anxiety, and improved analytical reasoning. Conclusion: Online open-book assessments serve as a valuable, sustainable, and inclusive digital revision strategy that promotes higher-order cognitive processing and knowledge retention among medical undergraduates.

Keywords: Forensic Medicine; Online Open-Book Examination; Digital Medical Education; Knowledge Retention; Formative Assessment.