

Original Article

Effectiveness of Structured Role-Play as a Pedagogical Intervention to Enhance MBBS Students' Performance in Paediatric Viva-Voce Examinations: A Pre-Post Experimental Study

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ABSTRACT

Background: Viva-voce examinations are integral part of medical education but during viva-voce students have anxiety, stress, and communication barriers. Structured Role-play offers an experiential learning approach that strengthens student's preparedness and performance. **Aim:** To assess the effectiveness of structured role-play in improving cognitive performance, positive behavioural attributes, and long-term retention among MBBS students during Paediatric viva voce examinations. **Methods:** A Pre-Post interventional study was conducted among 45 MBBS second-year students. A validated structured question bank and behavioural checklist were used for assessment. Students were initially assessed by a pre-test viva-voce, followed by structured feedback. Then they participated in a standardized role-play session conducted which simulated viva-voce scenarios. A two months cool-off period was given to minimize recall bias. Pre-test and post-test viva-voce scores were compared using paired t-tests. **Results:** The mean score of post-test significantly improved than pre-test from 52.9 to 71.5 after the role-play intervention ($p < 0.001$). Positive behavioural attribute scores increased from 8 to 15, indicating that the confidence, communication, and professionalism were improved and Negative behavioural deductions decreased from 3.4 to 2.3. **Conclusion:** Structured role-play when combined with immediate feedback and a cool-off period, it effectively enhanced cognitive performance, communication skills, and professional behaviour in viva-voce examinations. Incorporating role-play into medical curriculum will significantly improve student preparedness and long-term skill retention.

Keywords: Role-play, Viva-voce, Cognitive & Behavioural attributes, Communication skills Paediatrics

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INTRODUCTION

The foundation of excellent health care is Doctor-patient communication and it is important for improved patient outcomes. It consists of a wide range of competencies, including conducting patient interviews, eliciting relevant concerns, explaining diagnoses and important complications, explaining treatment options, and advising follow-up care. Strong communication skills are very important for discussing risks, providing pre-operative information, obtaining informed consent, counselling, and addressing adverse events. All these interactions play a critical role in various aspects of patient care.¹

In Medical education, viva-voce examinations play important role where students demonstrate subject knowledge, communicate effectively and display appropriate professional behavior.² Viva-voce examinations in Paediatrics demand a combination of subject knowledge, empathy, confidence, and clinical decision-making. Despite having adequate theoretical knowledge, many students experience considerable anxiety, stress, or intimidation during assessment, which can affect their performance. Previous studies indicate that learners with same academic competence may differ significantly in their ability to respond during oral examinations due to different comfort levels, fear, or examiner - student interaction.^{1, 3} Such anxiety may hinder students' ability to express their knowledge clearly and confidently.

Role-play is a useful teaching method for improving knowledge, attitudes, and skills in various subjects and different age groups. It has been extensively used in fields like professional training in business and human resource management, language learning and cross-cultural education.⁴ Role-play helps to reduce many challenges. By simulating the viva-voce environment, teachers create a safe space in which students can observe and rehearse examination behaviours. This process helps students to understand the viva format, to know common questioning patterns and reduce anxiety by offering rehearsal opportunities before the real vice-voce.^{5, 6} In addition to cognitive reinforcement, role-play also helps to build professional attributes such as clarity of expression, politeness, confidence, respectful interaction, and clinical reasoning skills important for effective doctor-patient communication and future clinical competence.⁷

Role-play sessions help by offering an authentic representation of the examination process that promotes clear expectations and better mental preparedness. By integrating role-play into viva-voce exam preparation, teachers adopt a more comprehensive, student-centred pedagogical approach that is line with contemporary principles of experiential learning. This study assesses the effectiveness of structured role-play as an educational tool to improve the performance, behaviour, and confidence of medical students. Hence the study was conducted to assess the effectiveness of structured role-play as an educational tool to reduce viva-voce related anxiety and improving the preparedness, performance, and long-term skill retention of medical students in Paediatric viva-voce examinations.

MATERIAL AND METHOD

A pre-post interventional study was conducted among MBBS second-year students in the Department of Paediatrics at a private medical college over a period of 6 months. All MBBS second-year students enrolled during the study period were invited to participate. Faculty members and trained observers served as examiners and evaluators. Informed consent was obtained from all participants.

The MBBS second-year students, teachers, and observers were oriented in different sessions regarding the study. A question bank, checklists, and a script for role-play was prepared and validated by faculty members, observers, and subject experts. The question bank was made according to the syllabus topics and arranged in ascending order of difficulty, to systematically assess higher cognitive domains of learning. The allocation of marks was in line with the difficulty index: the first four questions ($4 \times 5 = 20$ marks) were categorized as easy, next two ($2 \times 10 = 20$ marks) as moderately difficult, and last two questions ($2 \times 20 = 40$ marks) as highly challenging.

Initially, the participating students were assessed using the traditional viva-voce method, and scores were assigned accordingly. Along with the assessment of theoretical knowledge based on the structured question bank, additional marks were awarded using a checklist: two marks were given for each positive attribute and one negative mark was assigned for each negative attribute (Table 1), making a maximum total of 100 marks. These scores were labeled as "pre-test

role-play scores.” Immediate feedback was provided to the students based on the checklist regarding their performance.

Table 1: Scoring Checklist for Positive and Negative Behavioral Attributes

Positive Attributes (2 mark each)
Greeting the examiner
Asking permission to take a seat
Suitable attire
Appearing confident
Smiling when required
Appropriate gestures when required
Eye contact with examiner
Relaxed body posture
Involuntary movements of extremities
Stimulating examiner to ask more questions
Negative Attributes (-1 mark each)
Bluffing
Answering vaguely
Arguing to defend wrong answers
Taking a long pause before answering
Misleading the examiner by diverting topic

Subsequently, all participating students were oriented to the role-play process using the checklist and viva-voce script. They observed a mock viva conducted by teacher-actors and student-actors (senior faculty members), which enabled them to familiarize themselves with the viva-voce examination process.

To prevent bias, the examiner and the observer using the checklist were kept constant throughout the study. A two-month “cool-off” period was then provided to ensure retention of the concepts learned during the role-play. After this period, a post-test role-play viva-voce examination was conducted using the same examiners and observers. The scores obtained were compared with the pre- test role-play scores.

Statistical Analysis: Descriptive statistics (mean, SD, median, paired t-test) for pre- test and post- test score. A p-value < 0.05 considered statistically significant.

RESULTS

A total of 45 MBBS second-year students participated in the study. All participants completed both the pre-test and post- test viva voce assessments before and after intervention using structured role-play, ensuring a 100% response rate.

The structured role-play intervention resulted in a statistically significant improvement in student’s overall performance. The mean score increased from 52.9 in the pre-test before intervention assessment to 71.5 in the post-test after intervention evaluation, reflecting a substantial gain in mean of 18.6 marks as given in Table 2. Analysis using a paired t-test demonstrated that this improvement was highly significant ($p < 0.001$), indicating the effectiveness of the structured role-play method in enhancing student performance in Figure 1.

Table 2: Pre-test and Post-test Scores (n = 45)

Parameter	Pre-Intervention Mean	Post-Intervention Mean	Mean Difference	Sign.
Total Viva Score (0–100)	52.9	71.5	+18.6	< 0.001
Positive Attribute Score	8	15	+7	< 0.001
Negative Attribute Deductions	3.4	2.3	–1.1	< 0.01

The role-play intervention led to a marked improvement in students’ positive behavioral attributes. Table 2 showed the mean score increased from 8 in the pre-test assessment to 15 in the post-test assessment, indicating a gain of 7 marks.

The scores of negative behavioral attributes showed a

significant reduction after the intervention. The mean score decreased from 3.4 before the intervention to 2.3 afterwards, with an improvement of 1.1 marks. These findings indicate that the role-play strategy effectively improved desirable behaviors while reducing negative ones.

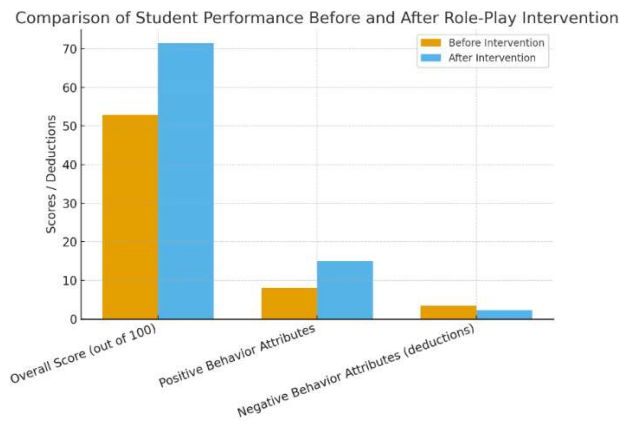


Figure 1: Students' performance before and after Role-play intervention

DISCUSSION

The results of this study showed strong supporting evidence that the structured role-play was an effective educational tool for improving students' performance in Pediatric viva-voce examinations. There is significant increase in total scores from 52.9 to 71.5 after the role-play intervention with a subsequent two-month cool-off period suggested gain in both cognitive and behavioral competencies.

A study conducted by D'Souza C., Jain A., et al.⁷ showed that 93.4% of participants perceived an improvement in managing challenging patient communication scenarios after a role-play intervention. The findings showed the effectiveness of interactive teaching tools like role-play in enhancing communication skills and cultivating empathy—attributes that are important for medical professionals.

One of the important outcomes of the intervention was the marked improvement in positive behavioral attributes. Students demonstrated enhanced confidence, better professional etiquette, appropriate examiner engagement, and more composed body language, reflected in the increase in positive attribute scores from 8 to 15.

Similarly, the reduction in negative behavior scores from 3.4 to 2.3 indicates that students became more proficient in avoiding common pitfalls such as bluffing, vague explanations, and defensive behaviors. This improvement enforces the role of guided practice and constructive feedback in shaping students' exam demeanor and reducing maladaptive responses under stress.

Importantly, the sustained improvement observed after a two-month cool-off period suggests the retention of skills. This showed that findings from studies demonstrating long-term benefits of simulated communication training in medical education through the role-play.

The inclusion of immediate feedback after role-play intervention appears to have played a significant role in facilitating these improvements. Feedback enabled students to reflect on their performance, recognize their strengths, and address specific weaknesses, supporting earlier research advocating feedback as a critical component of experiential learning.

In a study conducted by Nestel D. and Tierney T.⁵, the vast majority of students ($n = 274$; 96.5%) reported that the role-play experience was beneficial. The findings highlighted that the most valuable elements of role-play included opportunities for observation, rehearsal, and discussion, as well as the use of realistic scenarios and alignment with other components of the curriculum. Conversely, aspects perceived as less effective were those that elicited strong negative emotional reactions and those that lacked authenticity or realism.

Rønning S. B. and Bjørkly S.⁶ conducted a systematic literature review in which the findings indicate that role-play in health education contributes positively to the development of students' therapeutic and communication skills. However, the study also showed a scarcity of research in examining the use of role-play specifically for teaching therapeutic competencies. Additionally, few studies have explored its impact on students' self-reflection regarding their own professional practice. The review also found no evidence in assessing whether role-play training in educational settings translates into measurable outcomes in clinical practice. Based on this review, supervised group role-play appears to foster critical reflection and self-awareness among participants, including those assuming the roles of patients, therapists, and observers. Studies suggest that clinical role-play promotes a sense of equality between helpers and service users while enhancing student engagement, self-efficacy, and empathy, particularly within the context of mental health education.

Although the overall trends were positive, individual variability in outcomes indicates that factors such as

baseline anxiety, previous exposure to oral assessments, and communication style may influence the degree of benefit.

From an educational perspective, this study enforces the value of integrating structured role-play sessions into routine viva-voce preparation. Such interventions supports the students not only in mastering content but also in developing confidence, reducing anxiety, and cultivating professional behaviors essential for both examinations and real-world clinical encounters.

The limitations of the study include that this study was conducted at a single private medical college, which may limit the generalizability of the findings to medical students from other institutions and diverse educational settings. The sample size was relatively small ($n = 45$), which may have limited the statistical power of the study. The study used a pre-post interventional design without a control group and therefore, the observed improvement cannot be attributed exclusively to the structured role-play intervention, as other factors such as repeated exposure to the viva-voce format, feedback, maturation, or increased familiarity with the assessment process may have contributed to the improvement.

Future studies involving larger, multicentric samples with longer follow-up periods are recommended to confirm the effectiveness and generalizability of structured role-play in viva-voce preparation.

CONCLUSION

In conclusion, the structured role-play intervention, supplemented by immediate feedback with a two-month cool-off period, showed a significant improvement in students' viva-voce performance. The overall increase in examination scores, improvement of positive behavioral attributes, and reduction in negative behaviors collectively demonstrated the effectiveness of this educational approach. These findings support the integration of role-play as an important educational tool for strengthening both the proficiency and professionalism of medical students in viva-voce settings.

DECLARATIONS

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