

Short Communication

Developing Critical Appraisal Skills through Peer-Evaluated Role-Play: A Student-Centred Innovation in Pharmacology Education

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ABSTRACT

Context and Rationale: Critical appraisal of drug advertisements is a core competency in undergraduate pharmacology, essential for developing rational prescribing practices. Conventional practical sessions often foster passive learning, particularly during post-lunch hours when attention is reduced. Active, student-centred approaches are needed to sustain engagement and deepen conceptual understanding.

Description of Innovation: A role-play-based activity was developed in which student groups designed and performed two-minute simulated drug advertisements for assigned therapeutic categories. The session blended creativity, pharmacological accuracy, and peer evaluation within a structured educational framework.

Implementation: Sixty second-year MBBS students were organised into ten groups of six. Each group received a therapeutic category (analgesics, antiemetics, laxatives, or antipyretics) and ten minutes to prepare. Performances were followed by peer evaluation using a structured checklist, and verbal qualitative feedback was collected at the session's close.

Evaluation: Students demonstrated high levels of engagement, creativity, and active participation. Peer evaluation reinforced analytical skills and encouraged reflective thinking. Qualitative feedback was uniformly positive, with descriptors such as "interactive," "enjoyable," and "refreshing" recurring across responses.

Lessons Learned: Role-play is a feasible and well-received strategy for teaching critical appraisal in pharmacology. Absence of formal pre- and post-testing limits objective measurement of cognitive gain - an acknowledged limitation that warrants attention in future iterations. Incorporating validated rubrics and quantitative outcome measures would strengthen the evidence base.

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CONTEXT AND RATIONALE

Pharmacology instruction at the undergraduate level carries a dual responsibility: equipping students with the scientific knowledge to understand drug action and developing their capacity to critically evaluate clinical information, including promotional material from the pharmaceutical industry. Within the competency-based medical education (CBME) framework, the ability to appraise drug advertisements is an explicitly mapped skill, anchored in the principles of rational therapeutics and ethical practice.^[1]

Students are expected to assess advertisements for scientific accuracy, appropriateness of indications, and declaration of adverse effects, cost-effectiveness data, and adherence to regulatory guidelines. Yet despite its clinical relevance, this competency tends to receive inadequate attention in traditional pharmacology curricula, where worksheet-based exercises or didactic descriptions rarely sustain engagement or prompt genuine critical reflection.^[2]

The post-lunch pharmacology practical session is a familiar challenge in undergraduate teaching: attention flags, passive formats amplify disengagement, and neither students nor teachers are at their most alert. Educational research consistently demonstrates that active learning strategies - particularly those involving role-play and experiential participation, counter this pattern by demanding cognitive and social engagement simultaneously.^[3,4,5] Role-play, in particular, situates learners in realistic scenarios that mirror professional challenges, promote communication skills, encourage teamwork, and require participants to apply knowledge rather than merely receive it.^[6,7]

The present innovation was designed against this backdrop: a structured, time-limited, performance-based activity through which students would engage with the content of drug advertisements not as passive critics but as creators and evaluators.

DESCRIPTION OF THE INNOVATION

The activity required each student group to assume the role of a pharmaceutical marketing team and produce a two-minute advertisement for a drug in their assigned therapeutic category. The scenario deliberately inverted the usual student-information relationship: rather than analysing a pre-existing advertisement, students had to construct one - a demand that required them to internalise the very criteria they were expected to critique.

Groups were permitted to use any creative format - dramatized consultation scenes, musical jingles, fictional product campaigns and encouraged to invent brand names while maintaining pharmacological accuracy. This latitude served a pedagogical purpose: it introduced an element of creative freedom that increased intrinsic motivation, while the structured peer evaluation ensured that scientific rigour remained central.

Session objectives:

- To engage students in active critical appraisal of drug advertisements through a creative, role-play-based format
- To reinforce core pharmacological knowledge by requiring its application in a performance context
- To develop peer evaluation skills, communication, and teamwork through structured observation and feedback

IMPLEMENTATION

The activity was conducted during a scheduled pharmacology practical session at a medical college in South India. Sixty second-year MBBS students participated, organised into ten groups of six.

Procedure: Each group was assigned one of four therapeutic categories: analgesics, antiemetics, laxatives, or antipyretics. Groups were given ten minutes to plan and prepare their advertisement. Each group performed for approximately two minutes. Following all performances, peer evaluation was conducted using a structured checklist. Verbal feedback was collected from students at the end of the session.

Peer Evaluation Checklist (criteria):

- Accuracy of pharmacological information presented
- Mention of both generic and brand names
- Appropriateness and truthfulness of claims
- Inclusion of cost data and reference information where relevant
- Attention to ethical dimensions of pharmaceutical advertising
- Overall creativity and relevance to the assigned category

Each group evaluated all other groups using this checklist. The process of structured peer observation identifying what information was accurately conveyed,

what was exaggerated, and what was omitted mirrors the analytical process underpinning real advertisement appraisal.^[5,8]

Ethics statement: This activity was conducted as part of routine undergraduate pharmacology teaching at a medical college in South India. Ethical approval was obtained from the Institutional Ethics Committee (IEC) prior to implementation (Approval No. JIP/IEC-OS/2024/628, dated 08/05/2025). As the activity involved no experimental intervention, clinical procedure, or collection of personal identifiable data, participant confidentiality was maintained throughout. Verbal informed assent was obtained from all participating students prior to the session.

EVALUATION

Evaluation of the activity relied on direct observation of student behaviour during the session and qualitative verbal feedback collected at its close. No formal pre- or post-test was administered; as such, the findings reported here reflect observed engagement and subjective student experience rather than measured cognitive outcomes.

Students across all ten groups participated actively throughout the session. Performances drew on a variety of creative formats - some groups dramatized clinical consultations between prescribers and patients, others developed fictional advertising campaigns with invented slogans, and at least one group incorporated a musical element. The diversity of approaches suggested that students had genuinely interpreted their therapeutic category rather than defaulting to a formulaic template.

During peer evaluation, students demonstrated the ability to distinguish between accurate pharmacological claims and embellished or misleading promotional content - identifying both the strengths and weaknesses of each group's advertisement according to the checklist criteria. This process of structured observation and critique appeared to consolidate learning in ways that passive worksheet review rarely achieves.

Qualitative feedback collected verbally at the session's end was consistently positive. Students described the activity as "interactive," "enjoyable," and "refreshing," with several noting that it had helped them stay alert

during what is typically a low-engagement slot in the timetable. Reports of improved confidence in public speaking and a sense of collaborative achievement were also noted informally.

These observations are in keeping with findings from analogous educational settings where role-play has been used to teach pharmacology and clinical communication.^[1,4,9] The absence of formal outcome measurement is acknowledged as a significant limitation; however, the qualitative indicators - visible engagement, quality of peer critique, and the breadth of perspectives offered in verbal feedback, suggest that the session achieved its stated aims.

LESSONS LEARNED

Several practical insights emerged from conducting this activity.

The ten-minute preparation window proved adequate for creative planning without allowing the session to become unwieldy. A tighter timeline appeared to reduce over-scripting and encourage improvisation- an observation consistent with experiential learning literature emphasising productive discomfort.^[6]

The role inversion, from advertisement critic to advertisement creator was pedagogically valuable precisely because it demanded active application of appraisal criteria rather than their passive recognition. Students who must construct a plausible advertisement are compelled to engage with the same standards they are expected to apply when evaluating one.

Peer evaluation added a layer of accountability. Groups appeared more attentive to other groups' performances when they knew they would be evaluating them formally, and the process of using a structured checklist gave students a concrete vocabulary for discussing pharmacological and ethical standards.

The primary limitation of this innovation, as implemented, is the absence of quantitative outcome measurement. Without pre- and post-testing, it is not possible to attribute any change in knowledge or analytical skill directly to the activity. This is a gap that should be addressed in subsequent iterations ideally through validated instruments assessing critical appraisal competency before and after the session.

Additional refinements for future sessions might include faculty-moderated debriefing following peer evaluation to consolidate learning points; written reflective prompts collected after the session; and extension to other pharmacology competency areas such as prescription writing or adverse drug reaction identification. The format is also readily adaptable for interdisciplinary use across pharmacy, nursing, and allied health education.^[2,7]

DECLARATIONS

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