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Organization and Conduct of Educational Practice in Specialized Disciplines and a Rating System for Assessing Students' Knowledge, Skills and Competencies

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Abstract

Background: Practice-based training in specialized disciplines converts theoretical knowledge into professional competence, but assessment often relies on end-of-course testing. Aim: to substantiate organizational principles of educational practice and propose a multicomponent rating system. Methods: an analytical review guided by PRISMA 2020 and the Ottawa criteria. Results: a 100-point model combining workplace-based assessment, intermediate case-based evaluation and a structured final examination, with component-level minimum thresholds, was developed. Conclusion: valid rating requires outcome alignment, feedback and rater training.

Keywords

specialized disciplines; educational practice; rating system; competency-based education; workplace-based assessment; OSCE; oncology education.

Introduction

In specialized disciplines, educational practice is where students integrate theory, clinical reasoning and procedural skills under supervision. Contemporary medical education has shifted toward competency-based models in which progression depends on demonstrated performance rather than time served [1,2]. Miller's framework describes four levels of clinical competence: knows, knows how, shows how and does [3]; the concept of entrustable professional activities extends it by linking assessment to the level of supervision a trainee requires [4]. In many institutions, however, practice is still judged by a final oral or written test that captures only the lower levels of this

hierarchy. Good assessment is judged by validity, reproducibility, feasibility, educational effect and acceptability [5]. This study addresses the lack of an integrated model linking practice organization with a transparent rating system.

Aim of the Study

To substantiate the organizational principles of educational practice in specialized disciplines and to develop a rating system that objectively measures students' knowledge, skills and competencies.

Materials and Methods

An analytical review was performed in accordance with PRISMA 2020 reporting principles [6]. Publications from 2020 to 2025 in Scopus, Web of Science and PubMed, plus seminal frameworks, were screened for studies on workplace-based assessment and rating models. The extracted evidence was subjected to content analysis and synthesized into a model, which was then appraised against the Ottawa criteria [5]. No human participants were involved; ethical approval was not required.

Results

Three organizational conditions recurred: explicit learning outcomes for each practice block, a documented supervision structure with limited students per supervisor, and a practice logbook. For assessment, direct observation tools provide the most authentic information; a systematic review identified 55 instruments for observing clinical skills, but only a minority had substantial validity evidence [7]. The Objective Structured Clinical Examination (OSCE) standardizes skills testing [8], and programmatic assessment advocates aggregating many low-stakes data points before high-stakes decisions are taken [9,10]. On this basis, a 100-point rating model is proposed. Current assessment (40 points) comprises logbook and case documentation (10), workplace-based observations (20) and professional conduct and communication (10). Intermediate case-based assessment accounts for 20 points. The final assessment (40 points) consists of an OSCE (25) and a clinical case defense (15). Scores convert to the five-point scale conventionally applied in Uzbek higher education: 86–100 points as excellent, 71–85 as good, 55–70 as satisfactory and below 55 as unsatisfactory. To

prevent full compensation, a minimum of 55% is required in both the observation component and the OSCE.

Discussion

The model differs from purely additive systems in three respects. First, it gives most points to performance in authentic settings, consistent with the "does" level [3,4]. Second, minimum thresholds prevent strong theoretical results from masking unsafe practice, which is critical in oncology. Third, repeated observations with feedback yield reliable judgments through sampling [9,10]. These features align with national competency-based frameworks emphasizing longitudinal assessment [2,11]. Implementation depends on rater training, as examiner variability threatens reproducibility.

Strengths and Limitations

Strengths include integrating organization with assessment. Limitations are the absence of empirical validation in a student cohort and the need to adjust weights to each discipline; pilot testing is recommended.

Clinical and Practical Significance

Departments may use the model to design practice programs. In oncology training, it supports reliable evaluation of patient communication, multidisciplinary decision-making and procedural safety.

Conclusion

Educational practice in specialized disciplines should be organized around defined outcomes and assessed through a rating system that prioritizes observed performance, combines multiple evidence sources and applies minimum thresholds. This increases the validity and transparency of student assessment.

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