

*Viewpoint*

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## Advancing Bioethics Education with Multimodal Assessment Strategies

Russell Franco D'Souza<sup>1,2</sup>, Mary Mathew<sup>3</sup>, Krishna Mohan Surapaneni<sup>4,5\*</sup>

<sup>1</sup>Department of Education, UNESCO Chair in Bioethics, Melbourne, Australia.

<sup>2</sup>International Institute of Organizational Psychological Medicine, 71 Cleeland Street, Dandenong Victoria, Melbourne, 3175 Australia.

<sup>3</sup>Department of Pathology, Kasturba Medical College, Manipal, Manipal Academy of Higher Education (MAHE), Tiger Circle Road, Madhav Nagar, Manipal, Karnataka.

<sup>4</sup>Department of Biochemistry, Panimalar Medical College Hospital & Research Institute, Varadharajapuram, Poonamallee, Chennai, Tamil Nadu.

<sup>5</sup>Department of Medical Education, Panimalar Medical College Hospital & Research Institute, Varadharajapuram, Poonamallee, Chennai, Tamil Nadu.

**Corresponding Author:** Krishna Mohan Surapaneni

**E-mail:** krishnamohan.surapaneni@gmail.com

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Bioethics stands as a cornerstone of healthcare, guiding professionals through the moral and ethical dilemmas that are integral to clinical practice and research. From navigating questions of patient autonomy and confidentiality to balancing justice and beneficence, bioethics ensures that care is delivered with integrity and compassion [1]. As the complexities of modern medicine increase, the need for robust bioethics education becomes more pressing. Yet, despite its importance, bioethics education often relies on lectures and theoretical assessments, leaving students underprepared for the nuanced and real-world challenges they will face in their professional lives.

The effectiveness of bioethics education depends not only on how it is taught but also on how it is assessed. Assessment is a critical component of learning, shaping how students engage with the material and applying it in practice [2]. Unfortunately, many current assessment methods fall short, focusing heavily on cognitive recall while neglecting the practical application of skills and the internalization of ethical values. To truly evaluate a student's competence in bioethics, educators must adopt a holistic approach that assesses cognitive, psychomotor, and affective domains. This multimodal framework ensures that students are not only knowledgeable but also skilled and morally grounded in their decision-making processes.

The cognitive domain is foundational to bioethics education. It encompasses a student's ability to understand, analyze, and apply ethical principles such as autonomy, beneficence, and justice. Traditional assessments in this domain often rely on essays or multiple-choice questions, which can gauge knowledge but fail to capture higher-order thinking [3]. To better assess cognitive competencies, educators should incorporate methods like case-based discussions and situational judgment tests (SJTs). For example, a situational judgment test might present a scenario in which a healthcare provider must decide whether to honor a patient's request to withhold their terminal diagnosis from their family. Students would need to weigh competing ethical principles—autonomy versus honesty and justify their decisions. These methods encourage students to engage deeply with ethical dilemmas, fostering critical thinking and problem-solving skills that are essential in clinical settings [4].

Beyond knowledge, bioethics requires the ability to translate understanding into action, which is where the psychomotor domain comes into play. This domain focuses on the practical application of ethical principles in real-world scenarios [5]. It is one thing to understand the theory behind informed consent; it is another to effectively communicate with a patient to ensure they understand

the risks, benefits, and alternatives of a procedure. Skills-based assessments are critical for evaluating how well students can perform these tasks.

Role-playing and simulations are particularly effective in assessing psychomotor skills. For example, a simulation might involve a student explaining a difficult diagnosis to a patient while managing the emotional reactions of both the patient and their family. The educator can observe how the student navigates the conversation, ensuring that they balance empathy, clarity, and adherence to ethical guidelines [6]. Clinical shadowing also provides opportunities for students to observe and later emulate how experienced professionals handle ethical challenges in real-life contexts. By assessing how students act in these situations, educators can ensure that ethical principles are not only understood but also practiced effectively.

While knowledge and skills are critical, bioethics education would be incomplete without addressing the affective domain the realm of attitudes, values, and emotional engagement. This domain reflects how students internalize ethical principles, shaping their behavior and decision-making in ways that extend beyond the classroom [7]. It is perhaps the most challenging domain to assess because it requires insight into a student's beliefs, motivations, and emotional responses. Reflective journaling and narrative writing are powerful tools for evaluating the affective domain. By asking students to document their thoughts and feelings after encountering an ethical dilemma, educators can gain insights into how they process and integrate ethical principles. For example, a student might reflect on a situation where they witnessed a disagreement between a patient's family and the healthcare team regarding end-of-life care [8]. Through their reflection, the students could explore the tensions they observed, the values they prioritized, and how the experience influenced their understanding of ethical practice.

Portfolio-based assessments provide another way to evaluate the affective domain. Portfolios allow students to compile evidence of their growth over time, including reflections, case analyses, and feedback from peers and mentors [9]. This longitudinal approach captures not just what students know but how they evolve in their ethical reasoning and commitment to professional values. The process of building a portfolio also encourages students to engage in continuous self-assessment, fostering lifelong learning and ethical accountability.

Implementing a multimodal framework for bioethics assessment is not without challenges. One significant hurdle is ensuring that educators have the skills and resources to design and carry out these assessments effectively [10]. Many faculty members are familiar with traditional exams but may lack experience with reflective writing or skills-based evaluations. Institutions must invest in faculty development programs to equip educators with the tools and confidence to assess students holistically.

Time and resource constraints also pose challenges. High-quality assessments, particularly those that evaluate skills and attitudes, can be time-intensive and require significant preparation. For instance, setting up a simulation or reviewing a portfolio demands careful planning and dedication from educators [11]. Institutions must prioritize these efforts, recognizing that the long-term benefits of producing ethically competent professionals far outweigh the initial investment of time and resources.

Cultural resistance to change is another barrier. Traditional methods of teaching and assessing bioethics are deeply entrenched in many institutions, and shifting to a multimodal approach may face pushbacks from educators and administrators alike. Demonstrating the effectiveness of these methods through pilot programs and evidence-based studies can help build support and drive the adoption of innovative practices [12].

Despite these challenges, the need for a holistic assessment framework in bioethics education is clear. Cognitive, psychomotor, and affective domains each address distinct yet interconnected aspects of ethical competence. Together, they ensure that students are not only well-informed but also equipped to act with integrity and compassion in the face of complex ethical dilemmas [13]. Looking ahead, collaboration among institutions can play a pivotal role in advancing bioethics assessment. By sharing resources, case studies, and best practices, educators can create a unified framework that ensures consistency and excellence across different settings [14]. Additionally, integrating feedback loops into the assessment process can enhance learning outcomes.

Constructive feedback helps students identify areas for improvement while reinforcing their strengths, creating a supportive environment for ethical development.

The goal of bioethics education is to prepare healthcare professionals who can navigate the complexities of ethical decision-making with confidence, empathy, and professionalism. A multimodal assessment framework provides the structure needed to achieve this, ensuring that students develop the knowledge, skills, and values essential for ethical practice [15]. It bridges the gap between theory and real-world application, making bioethics a lived and practiced discipline rather than a theoretical one.

In an era of rapid medical advancements and increasing ethical complexity, the stakes for bioethics education have never been higher. Adopting a holistic approach to assessment is not just a pedagogical improvement it is a moral imperative. By fostering ethical competence across cognitive, psychomotor, and affective domains, educators can ensure that future healthcare professionals are not only capable of making the right decisions but also of doing so with humanity and integrity. This commitment to holistic assessment is a commitment to the future of ethical healthcare, where principles are not just taught but deeply understood and consistently applied.

## REFERENCES

1. Avci E. Evaluating the effectiveness of bioethics education through quality standards and indicators. *Int J Ethics Educn* 2022;7(1):5-19.
2. Chowning JT, Griswold JC, Kovarik DN, Collins LJ. Fostering critical thinking, reasoning, and argumentation skills through bioethics education. *PLoS One* 2012;7(5):e36791.
3. Nunes R, Duarte I, Santos C, Rego G. Education for values and bioethics. Springer Plus; 2015.
4. Tham J. Project-based learning in bioethics education. *Int J Ethics Educn* 2024;1:1-20.
5. Fernandes AK, Borges N, Rodabaugh H. Measuring cognitive outcomes in a pre-clinical bioethics course. *Perspect Med Educ* 2012;1:92-7.
6. Stolper M, Molewijk B, Widdershoven G. Bioethics education in clinical settings: theory and practice of the dilemma method of moral case deliberation. *BMC Med Ethics* 2016;17:1-10.
7. Gunn TM, Grigg LM, Pomahac G A. Critical thinking in science education: Can bioethical issues and questioning strategies increase scientific understandings?. *J Educ Thought* 2018;2:165-83.
8. Martins V, Santos C, Duarte I. Bioethics education and the development of nursing students' moral competence. *Nurs Educ Today* 2020;95:104601.
9. Mishra G, Ninave S, Dass A, Anjankar A. A Critical Appraisal of Bioethical Inclusions in Aetcom Module for Competency Based Undergraduate Medical Education as Prescribed by Medical Council of India. *Indian J Forensic Med Toxicol* 2021;15(1):391-5
10. Shaw MH, D'Angio CT, Dadiz R. Educational perspectives: personal, professional, and practice— a framework for ethics education. *Neoreviews* 2016;17(2):e61-9.
11. Keskin-Samanci N, Özer-Keskin M, Arslan O. Development of 'Bioethical values inventory' for pupils in secondary education within the scope of bioethical education. *Eurasia J Math Sci Technol Educ* 2014;10(2):69-76.
12. González-Blázquez FJ, Ruiz-Hontangas A, López-Mora C. Bioethical knowledge in students and health professionals: a systematic review. *Front Med* 2024;11:1252386.
13. Martins V, Santos C, Ricou M, Bataglia P, Duarte I. Bioethics education on medical students: opinions about ethical dilemmas. *SAGE Open* 2021;11(4).21582440211057118.
14. Montilla MJR, Esquerda M, Mateu JC, Pifarre J, Trujillano J. Survey on the knowledge of bioethics and moral attitudes by healthcare professionals: a pilot study. *Ramon Llull J Appl Ethics* 2019;1(10):75-90.
15. Thangavelu PD, Janakiraman B, Pawar R, Shingare PH, Bhosale S, DSouza RF. Understanding, being, and doing of bioethics; a state-level cross-sectional study of knowledge, attitude, and practice among healthcare professionals. *BMC Med Ethics* 2024;25(1):30.

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