

Action research in medical education: a way to transform teaching.

La investigación-acción en educación médica: una vía para transformar la docencia.

Enmanuel Álvarez Durán ¹, León Goity Vivar ^{2*}

¹ Department of Education, Faculty of Education, University of Antofagasta, Chile,
enmanuel.alvarez@uantof.cl, <https://orcid.org/0000-0003-3961-204X>

² Department of Medical Sciences, Faculty of Medicine and Dentistry, University of Antofagasta, Chile,
leon.goity@uantof.cl, <https://orcid.org/0009-0003-4087-5477>

* Correspondence: leon.goity@uantof.cl

Received: 15/5/26; Accepted: 28/5/26; Published: 29/5/26

Summary.

Action research is a relevant approach to transforming teaching in medical education, enabling faculty to critically analyze their own practice, implement improvement strategies, and generate pedagogical knowledge from real-world training contexts. In a scenario where medical education requires integrating basic sciences, pathophysiology, pharmacology, clinical reasoning, and decision-making, this approach transcends the logic of content transmission and promotes reflective, situated teaching grounded in local evidence. This article posits that action research unfolds as a cyclical process of planning, action, observation, and reflection, through which faculty identify educational problems, address them, and progressively refine their strategies. Its application is particularly relevant for evaluating active methodologies such as team-based learning, problem-based learning, clinical simulation, case analysis, and tutorial teaching. Although its implementation faces limitations related to faculty time, the low institutional recognition of educational research, and gaps in methodological training, action research offers an opportunity to integrate teaching, research, and pedagogical innovation in the training of healthcare professionals.

Keywords: action research; medical education; university teaching; reflective practice; educational innovation; active methodologies.

Resumen.

La investigación-acción constituye una vía pertinente para transformar la docencia en educación médica, al permitir que los docentes analicen críticamente su propia práctica, implementen acciones de mejora y generen conocimiento pedagógico desde contextos reales de formación. En un escenario donde la enseñanza médica requiere integrar ciencias básicas, fisiopatología, farmacología, razonamiento clínico y toma de decisiones, este enfoque supera la lógica de transmisión de contenidos y promueve una docencia reflexiva, situada y sustentada en evidencia local. El artículo plantea que la investigación-acción se desarrolla como un proceso cíclico de planificación, acción, observación y reflexión, mediante el cual el profesorado identifica problemas educativos, interviene sobre ellos y ajusta progresivamente sus estrategias. Su aplicación resulta especialmente relevante para evaluar metodologías activas como el aprendizaje basado en equipos, el aprendizaje basado en problemas, la simulación clínica, el análisis de casos y la docencia tutorial. Aunque su implementación enfrenta limitaciones asociadas al tiempo docente, al bajo reconocimiento institucional de la investigación educativa y a brechas de formación metodológica, la investigación-

acción ofrece una oportunidad para integrar enseñanza, investigación e innovación pedagógica en la formación de profesionales de la salud.

Palabras clave: investigación-acción; educación médica; docencia universitaria; práctica reflexiva; innovación educativa; metodologías activas.

Contemporary medical education demands the training of professionals capable of integrating biomedical knowledge, clinical reasoning, and decision-making in complex and changing scenarios. This challenge requires educators to move beyond the transmission of information and adopt a reflective practice oriented toward meaningful learning and the continuous improvement of medical training (1). In this context, action research is a relevant approach to strengthening university teaching, as it allows for the identification of problems in educational practice, the implementation of interventions, the analysis of their effects, and the progressive adjustment of teaching strategies (2-3). More than a methodological technique, it represents a way of integrating teaching, reflection and generation of situated pedagogical knowledge, supporting teaching decisions with evidence obtained from the formative contexts themselves (4).

In medical education, this approach is especially relevant, given that professional training requires integrating basic sciences, pathophysiology, pharmacology, clinical reasoning, and therapeutic decision-making (5-7). These competencies are difficult to develop through purely expository strategies. Therefore, action research allows teachers to evaluate active methodologies, such as team-based learning, problem-based learning, clinical simulation, case analysis, and tutorial teaching. Its value lies in examining not only the results obtained, but also the educational processes that help explain them (8).

Furthermore, action research promotes the generation of local evidence (9-10) This is especially relevant when curricular decisions are based on results obtained in contexts different from one's own. Systematic analysis of teaching practice allows for the recognition of student characteristics, implementation conditions, the dynamics of the teaching team, and institutional constraints that influence learning (11).

From this perspective, the academic development of university professors is not limited to disciplinary mastery, but also includes the ability to analyze and improve the training processes in which they participate (12-13). Within this framework, action research-training has been recognized as an innovative strategy to address the complexity of medical education and promote improvements based on reflection on practice (14).

Despite its transformative potential, the incorporation of action research into medical education faces significant limitations. Among these is the restricted time available to teacher educators, particularly in health sciences programs where clinical, administrative, and academic responsibilities converge. Furthermore, educational research does not always receive institutional recognition equivalent to that given to biomedical or disciplinary research. Gaps also persist in the methodological training of faculty, particularly in qualitative and mixed-methods research, reflective analysis, and the evaluation of educational interventions. Consequently, institutions must strengthen the competencies necessary to conduct research on teaching and sustain relevant training processes in the face of contemporary social and professional changes (13, 15).

Despite these limitations, action research offers a concrete opportunity to move towards a more critical, integrated, and contextualized medical education (1). Its contribution transcends the

improvement of teaching strategies, as it fosters an academic culture in which teaching and research are recognized as complementary dimensions of university teaching work (16).

In a context where medical practice demands constant adaptation, research into teaching is necessary to support relevant, evaluable, and formatively significant educational innovations (17). Figure 1 summarizes the action research cycle applied to medical education and its main components.



Figure 1. Cycle of research-action in medical education.

Declaration of conflict of interest: The authors declare no conflicts of interest.

References

- Elliott J. *Action research in education*. 4th ed. Madrid: Morata, 2000.
- Martínez-Miguélez M. Action research in the classroom. *Academic Agenda*. 2000, 7(1), 27-39. https://alad.cele.unam.mx/modulo2/modulo_problemas/investigacion-accion.pdf
- Guerrero R. Correct use and functioning of biomedical equipment in medical teaching through clinical simulation: an action research study. *Spanish Journal of Medical Education*. 2026, 7(1). <https://doi.org/10.6018/edumed.692131>
- Colmenares E. AM, Piñero M. ML. Action research: a heuristic methodological tool for understanding and transforming socio-educational realities and practices. *Laurus*. 2008, 14(27), 96-114. <https://www.redalyc.org/articulo.oa?id=76111892006>
- Batista Garcet Y, Villavicencio Cedeño LB. Impact of the application of clinical cases and experimental practices on the academic performance of second-semester students in Medical Biochemistry. *Spanish Journal of Medical Education*. 2025, 6(4). <https://doi.org/10.6018/edumed.674751>
- Ramírez ME, Castellanos-Suárez R, Badillo R, Naranjo FF, Insuasty JS, Gómez J, Castellanos-Bueno R, Callejas MM. Meaningful learning of Internal Medicine through clinical competency

- assessment. *Action Research. Salud UIS*. **2004**, 36(3), 111-124. <https://revistas.uis.edu.co/index.php/revistasaluduis/article/view/625>
7. Cordeiro L, Soares CB. Action research in the healthcare field: a scoping review. *JBI Database of Systematic Reviews and Implementation Reports*. **2018**, 16(4), 1003-1047. <https://doi.org/10.11124/JBISRIR-2016-003200>
 8. Rendón Cazales V, Benavides Lara M, Sánchez Mendiola M, Mansilla M. Participatory action research and evidence-based education in the field of health: researching from practice. *Investigación en Educación Médica*. **2024**, 13(49), 129-137. <https://doi.org/10.22201/fm.20075057e.2024.49.23578>
 9. Soh KL, Davidson PM, Leslie G, Abdul Rahman AB. Action research studies in the intensive care setting: a systematic review. *International Journal of Nursing Studies*. **2011**, 48(2), 258-268. <https://doi.org/10.1016/j.ijnurstu.2010.09.014>
 10. Cruz Gama EDJ, Gómez Quiroz J, Nava Amaya MM, Pelcastre Villafuerte BE. Teacher training in public health: analysis of an experience for strengthening educational quality. *Revista Española de Educación Médica*. **2025**, 6(4). <https://doi.org/10.6018/edumed.672041>
 11. Genn JM, Harden RM. What is medical education here really like? Suggestions for action research studies of climates of medical education environments. *Medical Teacher*. **1986**, 8(2), 111-124. <https://doi.org/10.3109/01421598609010737>
 12. Vidal Ledo M, Rivera Michelena N. Action research. *Higher Medical Education*. **2007**, 21(4). http://scielo.sld.cu/scielo.php?pid=S0864-21412007000400012&script=sci_arttext
 13. Varona Domínguez F. Integrative and active university education: basic characteristics. *Cuban Journal of Higher Education*. **2021**, 40(2), 36-50. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0257-43142021000200003
 14. Camacho Silvas LA, Marín Uribe R, Guzmán Ibarra I. Disruptive strategies in medical training: a new methodological proposal. *Educación Médica*. **2025**, 26(5), 101067. <https://doi.org/10.1016/j.edumed.2025.101067>
 15. Zabalza M. *Teaching competencies of university professors: Quality and professional development*. Madrid: Narcea Ediciones, **2003**.
 16. Posada S. The training of university students: a great challenge for the university. *Unipluriversidad*. **2006**, 6(2), 11-17. <https://dialnet.unirioja.es/servlet/articulo?codigo=7896006>
 17. Edler A. Action research in medical education: a shifting paradigm or old wine in new skins? *The Clinical Teacher*. **2009**, 6(2), 139-140. <https://doi.org/10.1111/j.1743-498X.2009.00271.x>

