

Challenges of teaching research at the university level: a look from the teaching reflection at IUPFA.

Desafíos de la enseñanza de la investigación en el grado universitario: una mirada desde la reflexión docente en el IUPFA.

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Summary.

Introduction: Research training is an essential component of higher education, although its teaching continues to face pedagogical, institutional, and technological challenges that hinder the development of research skills in students. **Objective:** To evaluate the cross-cutting challenges in the teaching and practice of research in undergraduate programs at IUPFA, based on the systematization of problems reported by faculty. **Results:** The reflections stem from a meeting in which 34 research faculty members, including those responsible for methodology courses and representatives from research departments, participated. The activity, conducted in a hybrid format and recorded through audio recordings and a logbook, allowed for the identification of problems related to academic literacy, the transfer of methodological knowledge to practice, tutorial support, curricular articulation, the institutional conditions for the development of final research projects, and the impact of artificial intelligence on academic integrity. Strategies aimed at strengthening research training were also identified, including the incorporation of academic writing exercises in different subjects, the use of research logs, tutor training, and the creation of spaces for sharing final projects. **Conclusion:** Teaching research requires a comprehensive, cross-cutting, and collaborative institutional approach that fosters the progressive development of scientific competencies and a research culture in undergraduate programs.

Keywords: Curriculum, Research promotion, Professional education, Universities.

Abstract.

Introduction: Research training is an essential component of higher education, although its teaching continues to face pedagogical, institutional, and technological challenges that hinder the development of research skills among students. **Objective:** To assess the cross-cutting challenges in the teaching and practice of research in IUPFA's undergraduate programs, based on an analysis of the issues raised by faculty members. **Results:** These reflections stem from a meeting attended by 34 faculty members who are researchers, instructors responsible for methodology courses, and representatives from research departments. The activity, conducted in a hybrid format and documented through recordings and log, identified issues related to academic literacy, the transfer of methodological knowledge to practice, tutorial support, curricular coordination, institutional conditions for the development of final research projects, and the impact of artificial intelligence on academic integrity. Furthermore, strategies aimed at strengthening research training were

identified, including the incorporation of academic writing exercises into various courses, the use of logblogs, the training of tutors, and the creation of spaces for sharing final research projects. **Conclusion:** Teaching research requires a comprehensive, cross-disciplinary, and collaborative institutional approach that fosters the progressive development of scientific competencies and a culture of research in undergraduate programs.

Keywords: Curriculum, Research Promotion, Professional education, Universities.

1. Introduction

In the contemporary landscape of higher education, research training has ceased to be the exclusive domain of graduate programs and has become a fundamental pillar of undergraduate degrees (1-3). Today, teaching research at the university level constitutes a cross-cutting challenge that involves and complexly integrates pedagogical, institutional, technological, and cultural aspects (3, 4). Developing research skills during undergraduate studies not only fulfills a formal academic requirement but is also essential for fostering critical thinking, the ability to solve complex problems, and continuous professional development (5). However, the transition from the theoretical formulation of curricula to the effective practice of scientific production in the classroom is often hindered by various realities (6). Despite institutional efforts to strengthen research training, undergraduate students frequently perceive research-related courses as a complex undertaking and, at times, a barrier to their academic progress (7).

The Argentine Federal Police University Institute (IUPFA) faces a complex reality in managing six academic units with undergraduate and graduate programs. Among these is the health sciences area, which includes the Bachelor of Science in Nursing and the Bachelor of Science in Operating Room Organization and Assistance. Despite the distinct realities of these programs, the challenges they face are similar.

The Academic Unit for Undergraduate Studies was invited to a meeting convened by the Research and Development Secretariat, aimed at creating opportunities for collaborative work to strengthen and elevate the importance of courses related to Integrative Final Projects (TFI), undergraduate theses, or dissertations. This meeting promoted coordinated academic strategies that contribute to methodological support and enhance students' academic output. Consequently, this manuscript presents a reflection derived from the shared analysis of the difficulties, challenges, and opportunities for developing research courses in the institution's various undergraduate programs, outlining the cross-cutting challenges in teaching and practicing research within IUPFA's undergraduate programs.

2. Methods

This work corresponds to a reflective article based on the systematization of an academic experience developed at the University Institute of the Argentine Federal Police (IUPFA). The reflection originated from a participatory workshop held in a hybrid format, conceived as a space for exchange and collective construction among faculty responsible for courses related to research instruction and representatives from the Research Department. Thirty-four faculty researchers participated, including those involved in methodology courses and final research project workshops across the Institute's various degree programs, as well as tutors from the Methodological Support Clinic, the Undergraduate Academic Unit, and the Research and Development Secretariat. The activity aimed to identify, analyze, and discuss the main difficulties, challenges, and opportunities related to research instruction and the development of final research projects at the undergraduate level.

The recording of the meeting and a logbook kept during the event, which documented the main contributions, points of consensus, and proposals arising from the group discussions, were used as sources of information. Subsequently, both records were reviewed together to identify recurring themes and organize the reflections into thematic axes representing the central aspects addressed by the participants. The organization of the thematic axes followed a process of open coding and grouping by conceptual similarity, based on the recurrence of the topics discussed. The analysis process was interpretive and reflective, aimed at integrating the experiences and perspectives of the participating teachers with contributions from the literature on research training, academic literacy, and educational innovation. Based on this systematization, the manuscript was structured around categories of analysis that allowed for discussion of the main challenges identified and the strategies proposed to strengthen research instruction in undergraduate programs.

Since this article is based on reflections on an institutional academic activity and did not involve the collection of sensitive information or intervention with individuals for research purposes, the anonymity of the opinions expressed during the workshop was preserved, and the results are presented in aggregate form, avoiding the individual identification of participants. The use of AI-powered tools for the review and correction of the study text is acknowledged. Grammarly was used for the orthotypographical and grammatical review of this work.

3. Results

The reflections that emerged during the workshop allowed for the identification of a set of recurring problems across the various programs at IUPFA, as well as possible strategies to strengthen the research training of students in the institution's programs. The problems raised by the participants are addressed below.

3.1 *Academic literacy as a persistent challenge*

During the exchange, the discussion focused on the difficulties many students face in developing skills considered fundamental for conducting research. These included limitations in academic writing, the comprehension and interpretation of scientific texts, and data analysis and interpretation. Participants noted that these difficulties often reflect prior educational gaps, frequently linked to previous learning experiences, and that they become particularly evident when preparing projects or final reports. It was also observed that the teaching of academic writing is often confined to methodology courses, while other subjects rarely promote systematic writing exercises. In this context, the need arose to strengthen academic literacy as a shared institutional responsibility, not solely attributable to research courses. Among the proposed strategies were the use of learning logs, the integration of writing activities into various curricular areas, progressive support for students in the development of academic texts, and the expansion of related continuing education courses, such as "Introduction to Academic Writing."

A systematic review conducted by Jefferies et al. (8) that included a set of 22 scientific articles, reported that students need support to develop academic literacy skills when starting their nursing degree, that teaching practices should be consistent both in the design of assessments and in feedback to students to improve their reading and writing skills, and finally, highlights that academic literacy can facilitate critical thinking when assessing students using discipline-specific genres that relate to their future professional nursing practice.

Teaching students to read, understand, and produce academic texts using disciplinary terminology is a challenge for higher education institutions. This requires integrating reading and writing into the various subjects of the curriculum, promoting the analysis of research design, and implementing constant feedback on the work produced. Despite the importance described, it is

essential to highlight that disciplinary training—whether in health professions or not—is often entirely focused on developing clinical skills, to the detriment of other abilities. This necessitates a thorough reconsideration and reconfiguration of curricula.

3.2 The gap between methodological theory and research practice

Another emerging theme was the difficulty students experience in transferring methodological knowledge learned in the classroom to concrete research situations—that is, in linking theory and practice. The instructors pointed out that, even when certain concepts are understood from a theoretical perspective, obstacles frequently arise when formulating research problems, designing methodological strategies, or interpreting results. This situation is also linked to the selection of research topics. According to the participants, many students choose overly simplistic topics with limited analytical potential, or highly complex problems that exceed their material, temporal, and cognitive capabilities. In both cases, defining the object of study emerges as a critical skill requiring sustained teacher support.

The discussions highlighted the need to promote educational experiences that introduce students to real-world research situations early on, fostering a gradual progression from simple exercises to more complex projects. Currently, the institution encourages student participation in research projects led by faculty, emphasizing that the studies conducted are interdisciplinary, which promotes collaborative work and allows for addressing complex problems from a pluralistic perspective.

On the other hand, research seedbed programs and research incentive grants emerge as effective interventions to create and consolidate learning communities and constitute a training tool to promote research in the different fields of knowledge (9).

3.3 Tutorial support and research pathways

The role of the tutor was identified as central to the development of final research projects. However, the shared experiences revealed significant heterogeneity in the support modalities, as well as differences in the methodological training of those who perform this function. While a trained tutor can become a facilitator of learning and scientific production, insufficient or inadequate guidance can hinder students' progress (4, 6). Consequently, the importance of strengthening tutor training and professional development processes was highlighted, as well as establishing common institutional criteria for the methodological guidance of final projects.

A study by Lee et al. (10) highlighted the importance of mentorship in research teaching processes, emphasizing the supportive role of mentors in developing basic research skills, as well as the need for sufficient time for teaching and guidance. This finding was corroborated by Mokhelepa et al. (11), who, in a systematic literature review, identified the lack of mentorship as a limiting factor for the effective development of and commitment to research activities among students in health sciences disciplines.

Furthermore, difficulties stemming from curricular fragmentation were identified. In particular, the lack of continuity between related courses was highlighted, hindering the monitoring of projects initiated in previous stages and frequently forcing the restarting of processes that could be developed in a coordinated manner. This results in a heavier workload for teachers and greater strain on students. This finding is considered particularly relevant and warrants collaborative work among the faculty to establish a cross-cutting and integrated approach in the development of research-oriented courses. This would allow, for example, work completed in one course—such as writing a research project in Research Methodology—to be carried out in its corresponding course.

3.4 Individual work, group work and student autonomy

The format for preparing final projects generated considerable debate. On the one hand, individual work fosters the personal development of research skills, although it places greater demands on students with methodological difficulties or time constraints. On the other hand, group work allows for the distribution of tasks and collaborative learning, but it can create inequalities when some members assume the majority of the responsibilities.

Participants also pointed out the difficulties that arise when students must independently complete their work after the course has finished. The transition from the systematic support provided during the course to individual preparation for the final stage often results in significant delays in the submission and defense of their work.

These observations highlight the need to design, implement and/or improve monitoring mechanisms that allow for continued support beyond the formal completion of the courses.

3.5 Technological transformations, artificial intelligence and academic ethics

The emergence of artificial intelligence (AI) tools sparked one of the most topical debates at the conference. Participants expressed concern about plagiarism and the undeclared use of AI-generated content, leading to discussions about new forms of academic fraud.

However, the potential of these tools as support resources for teaching and learning was also recognized. In particular, their usefulness for style correction, proofreading, organizing ideas, and supporting the writing process was highlighted.

In this regard, the need arose for institutions to develop clear guidelines on the ethical use of artificial intelligence in academic contexts (12). Likewise, institutional limitations were identified related to the absence of plagiarism detection tools, the lack of specific guidelines, and certain difficulties in accessing digital resources and institutional repositories.

Studies highlight that the use of AI by students has benefits such as personalized learning and time optimization, but it also poses serious risks such as the loss of critical thinking, plagiarism, and technological dependence in the educational process (13-15). The teacher's role, therefore, is to guide students in the correct use of these tools and supervise the work done, thus promoting their ethical use.

3.6 Motivational, generational and contextual factors

The discussions also highlighted the influence of personal and contextual factors on the development of research projects. The professors pointed out that many students must balance their studies with work and family responsibilities, a situation that limits the time available for research activities.

In some cases, the differential impact of caregiving responsibilities was highlighted, especially among female students, as well as the particular difficulties that very young or older students may experience when faced with the demands of academic writing. The double burden, understood as a person having to attend to work and home demands simultaneously, in addition to the academic workload, is common in highly feminized fields such as Nursing and Surgical Instrumentation (16-18). This negatively affects the involvement, intention, and commitment to the development of research projects and, therefore, impacts the academic trajectory of students (19).

At the same time, several participants reflected on cultural changes that seem to affect the willingness to engage in long-term projects, characterized by sustained processes of reading,

analysis, and production. These observations led to an emphasis on the importance of exploring students' motivations and developing pedagogical strategies that foster commitment to research.

3.7 Innovative strategies to strengthen research training

Along with identifying challenges, the workshop provided an opportunity to share successful experiences. Among these, the initiative called “*The TIF Kitchen*,” implemented in the Nursing program, stood out. This initiative consists of brief oral presentations where students present their work to peers from other years and faculty members.

According to the participants, this experience fosters the sharing of knowledge, strengthens communication skills, and allows them to rehearse their final project presentation in a formative environment before the final evaluation. Furthermore, it helps to make the research process more visible, promoting an academic culture based on the exchange of experiences and peer learning.

3. Discussion

The reflections that emerged during the workshop show that teaching research in undergraduate programs is a complex process that goes far beyond the transmission of methodological content (3, 4). Research training is configured as a multidimensional experience involving academic competencies, motivational factors, institutional conditions, teaching practices, and technological transformations that simultaneously influence students' trajectories (3, 4, 7).

Among the main challenges identified are difficulties in reading, writing, and analyzing scientific information; the gap between theoretical knowledge and its practical application; the need to strengthen tutoring and mentoring processes; and institutional limitations related to resources, procedures, and support mechanisms for the development of final research projects. Similarly, the incorporation of artificial intelligence tools presents new scenarios that require clear regulatory frameworks and pedagogical strategies that promote their ethical and responsible use.

The problems addressed have been widely described in the literature as causes of difficulties in completing final projects and as factors that can negatively affect undergraduate students' academic trajectories (20). A study conducted in Peru (21) found difficulties in integrating theory and practice; this leads to difficulties in defining the content and structure of the thesis, which, combined with a lack of tutorial support, represents the main obstacles to completing the final project. In addition, Ruíz & Pérez de Villarreal (22) highlight that the presence of conceptual errors (notions of structure, research, analysis, critique, authorship, and plagiarism) rooted in students' academic practices manifests itself in their understanding of final projects and their development processes, which requires a greater effort from thesis advisors, revealing difficulties similar to those found in the present study.

The discussions also revealed that many of the difficulties observed are not exclusive to methodology courses, but rather reflect cross-cutting problems present throughout university education. Consequently, strengthening research skills requires an integrated curricular approach capable of promoting reading, writing, critical analysis, and knowledge production experiences in multiple learning environments.

Furthermore, innovative experiences were identified that can contribute to the development of a stronger research culture, including the use of learning logs, the incorporation of academic writing exercises in different subjects, the continuous training of tutors, and the creation of spaces for socialization and preliminary defense of research papers. These initiatives highlight the importance of building learning communities where research is conceived as a gradual, collaborative, and supported process (23).

The main transferable implication of this experience is that difficulties in teaching research should not be interpreted solely as individual student shortcomings, but rather as signs of the need to review how institutions construct, support, and sustain research training pathways. The experience analyzed demonstrates the value of institutional spaces for reflection among faculty and academic leaders to identify shared problems, exchange best practices, and design improvement strategies. In a context characterized by rapid changes in the ways knowledge is produced and accessed, strengthening research teaching is essential for training critical, reflective professionals committed to generating high-quality evidence. More than a subject or a curricular requirement, research should be considered a cross-cutting competency that permeates the entire university experience and contributes to the holistic development of future professionals.

Limitations

This work presents some limitations that should be considered when interpreting its reflections. First, the experience took place in a single higher education institution at the university level, so the challenges identified are closely linked to the institution's curricular, organizational, and contextual characteristics. Second, the reflective, rather than empirical, nature of the study means that the findings derive from the systematization and interpretation of the exchanges that occurred during a participatory workshop, without any intention of estimating the frequency or magnitude of the problems identified. Finally, a formal *member-checking process was not carried out*, which would have allowed participants to review and validate the categories or interpretations developed from their contributions. This omission limits the possibility of directly corroborating the correspondence between the authors' interpretations and the meanings attributed by the participants. Nevertheless, the combined use of the workshop recording and the work log allowed for a comparison of the available records and facilitated a consistent systematization of the main themes addressed.

It is suggested for future studies to expand the participation of teachers from other institutions, incorporate systematic procedures for validating interpretations and implement a qualitative design to favor the replicability of the study (24).

4. Conclusions

- Difficulties in academic literacy (critical reading, scientific writing and data interpretation) represent one of the main obstacles to the development of research skills and demonstrate the need to strengthen these skills throughout the curriculum in both health and non-health disciplines.
- There is a gap between theoretical learning and its practical application, which makes it difficult for students to formulate research problems, adequately define their objects of study, and develop methodologically viable projects, which warrants introducing students to research practices early on.
- Tutorial support and curricular articulation are determining factors for the quality of final research projects; therefore, it is essential to strengthen the methodological training of tutors and establish common institutional criteria for student guidance.
- The personal and contextual conditions of the students —such as work and family responsibilities, time availability, age and motivation— significantly influence the development and completion of research work.
- Experience shows the need to mainstream academic literacy, integrate research training into the curriculum, and promote a progression that allows students to develop autonomy gradually.

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