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Research competencies of teaching Staff at Universidad Florencio del Castillo, Costa Rica

Competencias de investigación de las personas docentes de la Universidad Florencio del Castillo, Costa Rica

Competências de pesquisa do corpo docente da Universidad Florencio del Castillo, Costa Rica

Abstract

Introduction: research constitutes a core function of higher education and a central component of the profile of university faculty, who are expected to integrate their teaching practice with processes of scientific knowledge generation and dissemination. **Objective:** to identify the research competencies possessed by faculty members at Florencio del Castillo University, Costa Rica. **Method:** a quantitative, descriptive, cross-sectional study was conducted using a survey based on a self-administered questionnaire that included dichotomous questions, Likert-scale items, and one open-ended question. The instrument was administered to faculty members with active appointments at the institution. Data were analyzed using descriptive statistics and qualitative content analysis. **Results:** faculty members highly value the importance of research for their academic careers and professional development; however, this appreciation is not reflected with the same intensity in their everyday teaching practice. Participants reported strong skills in the initial stages of the research process but identified greater limitations in scientific writing and publication. Although the institutional environment was perceived as supportive of research activities, limited time availability emerged as a significant constraint. **Conclusion:** faculty members demonstrate a favorable foundation of research competencies. Strengthening these competencies requires concrete institutional support in terms of time allocation, methodological training, and guidance in scientific writing.

Keywords: research competencies, Costa Rica, higher education, scientific writing, faculty members

Resumen

Introducción: la investigación constituye una función sustantiva de la educación superior y un componente central del perfil del personal docente universitario, que debe articular su práctica pedagógica con procesos de generación y comunicación del conocimiento científico.

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Objetivo: identificar las competencias de investigación con las que cuenta el personal docente de la Universidad Florencio del Castillo, Costa Rica. **Método:** estudio cuantitativo, descriptivo y transversal, desarrollado mediante una encuesta con cuestionario autoadministrado que incluyó preguntas dicotómicas, preguntas en escala de Likert y una pregunta abierta, aplicada a personas docentes con nombramiento activo en la institución; los datos se procesaron mediante estadística descriptiva y análisis de contenido cualitativo. **Resultados:** el personal docente valora ampliamente la importancia de la investigación para su carrera y su desarrollo profesional, aunque esa valoración no se traduce con la misma fuerza en su práctica docente cotidiana; muestra habilidades sólidas en las etapas iniciales del proceso investigativo y mayores limitaciones en la redacción de productos científicos, dentro de un ambiente institucional percibido como favorable, pero con escaso tiempo disponible para investigar. **Conclusión:** el personal docente posee una base favorable de competencias investigativas, cuyo fortalecimiento requiere condiciones institucionales concretas en tiempo, capacitación metodológica y acompañamiento en escritura científica.

Palabras clave: competencias de investigación, Costa Rica, educación superior, escritura científica, personal docente

Resumo

Introdução: a pesquisa constitui uma função substantiva da educação superior e um componente central do perfil do corpo docente universitário, que deve articular sua prática pedagógica com processos de geração e disseminação do conhecimento científico. **Objetivo:** identificar as competências de pesquisa do corpo docente da Universidade Florencio del Castillo, Costa Rica. **Método:** estudo quantitativo, descritivo e transversal, desenvolvido por meio de uma pesquisa com questionário autoaplicável que incluiu questões dicotômicas, itens em escala Likert e uma questão aberta. O instrumento foi aplicado a docentes com vínculo ativo na instituição. Os dados foram analisados por meio de estatística descritiva e análise de conteúdo qualitativa. **Resultados:** os docentes atribuem elevada importância à pesquisa para suas carreiras acadêmicas e desenvolvimento profissional; entretanto, essa valorização não se traduz com a mesma intensidade em sua prática docente cotidiana. Os participantes demonstraram habilidades consistentes nas etapas iniciais do processo de pesquisa, mas maiores limitações na redação e publicação de produtos científicos. Embora o ambiente institucional tenha sido percebido como favorável à pesquisa, a disponibilidade limitada de tempo para realizar atividades investigativas foi apontada como uma restrição relevante. **Conclusão:** o corpo docente apresenta uma base favorável de competências em pesquisa. O fortalecimento dessas competências requer condições institucionais concretas relacionadas à disponibilidade de tempo, à capacitação metodológica e ao acompanhamento em escrita científica.

Palavras-chave: competências em pesquisa, Costa Rica, educação superior, escrita científica, corpo docente



Introduction

Across Latin America, a number of studies have treated the research competencies of university faculty as a determinant of higher education quality and of the consolidation of an institutional research culture. García-Herrera and Cárdenas-Cordero (2022), working with instructors at the Universidad Católica de Cuenca (Ecuador), identified several distinct research profiles among university teaching staff. Their findings show that these competencies are unevenly distributed across faculty and that developing them calls for differentiated institutional strategies. Results of this kind make clear that universities, Costa Rican ones included, need to identify the research competencies of their faculty systematically before designing actions that strengthen an institutional research culture.

Research belongs at the center of university life, since it drives scientific development and, with it, the advancement of society at large. Universities are therefore expected to create spaces that promote research and to facilitate access to knowledge (Cruz Pérez & Pozo Vinueza, 2020). As León Pupo et al. (2022) put it, "a university that does not pay special attention to research, a substantive process and a decisive one for institutional success, is unthinkable today" (p. 168). University instructors, in turn, are expected to commit not only to pedagogical practice but also to a culture of research, because teaching and research should be understood as essential complements in their work as educators (Pirela Áñez et al., 2019).

Research competencies can be defined as the knowledge, aptitudes, and skills people need to carry out research. They include the ability to identify and formulate problems, state hypotheses, design methodologies, collect and analyze information, discuss and generate results, and communicate findings to a scientific community (Juárez Popoca & Torres Gastelú, 2022). Ríos Cabrera et al. (2023) note that the concept of competence has been used loosely and without an agreed definition. Even so, there is relative consensus that research competencies involve an integration of knowledge that goes beyond technical mastery, since they also demand disposition, critical thinking, reflective capacity, and openness to dialogue with other academic communities. In the knowledge society, preparing people with these capacities requires universities to strengthen research and integrate it with their other substantive functions (Moncada et al., 2025). For the purposes of this article, research competencies are understood as the capacities that allow teaching staff to take an active and rigorous part in producing, managing, and disseminating scientific knowledge in their respective disciplinary fields.

A relevant distinction in conceptualizing research competencies is that between their declarative and their executive dimensions: an instructor may know the steps of the scientific method without having developed the ability to apply them autonomously and rigorously in a specific study. Juárez Popoca and Torres Gastelú (2022) propose an action-oriented characterization of basic research competence in which digital information management, the formulation of research questions, and the communication of results are treated as inseparable components. Along the same lines, Ríos Cabrera et al. (2023) define research skills as people's capacity to apply the scientific method autonomously and effectively, drawing on their knowledge, abilities, attitudes, and prior experience.

Ríos Cabrera et al. (2023) sort the research profile into four groups: skills

related to the research problem, those tied to the theoretical framework, those associated with method, and those involved in communicating results in writing and orally. This taxonomy is especially useful here because the variables in the instrument administered to the teaching staff of the Universidad Florencio del Castillo (UCA) correspond directly to these axes.

Castro Sandoval and Silva Monsalve (2023), for their part, propose that research skills fall into two broad groups, instrumental and social. The former has to do with command of language, the handling of cognitive operations, and the ability to observe and pose questions; the latter is oriented toward collaborative work, the sharing of the knowledge built, and understanding and dialogue. Among the instrumental skills, searching for and evaluating information sources has taken on particular importance with the proliferation of digital literature and the use of artificial intelligence, which help streamline the search, selection, and organization of knowledge in contemporary academic settings (Juárez Popoca & Torres Gastelú, 2022). Methodological command, the axis that holds the research process together, adds to this: Barros and Turpo (2022) report that research training pays off most in faculty scientific output when doctoral training is involved.

Scientific communication is a fundamental dimension of research work and, at the same time, one of the hardest skills for university teaching staff to develop (Bertoldi, 2020). Contreras Cázarez and León Duarte (2025) define it as a process of disseminating research knowledge that, in the university setting, takes the form of a teaching competence aimed at communicating science in the classroom. They organize it into three interrelated dimensions: scientific outreach, scientific production and culture, and research dissemination. The last of these covers instructors' ability to publish in indexed specialized journals, take part in academic networks, and meet the visibility standards that higher education institutions have adopted as quality indicators. In Costa Rica this dimension carries particular weight, since bodies such as the Sistema Nacional de Acreditación de la Educación Superior (SINAES) tie institutional accreditation to the scientific output of academic staff.

Writing the scientific article, the end product of the research process, is among the best-documented barriers in the literature. Santana Garriga et al. (2023) report that most instructors currently struggle to write a scientific article properly: they have trouble conforming to the varied publication standards journals require, producing a text with scientific rigor, and handling citations and references correctly. In addition, open access, academic social networks, and institutional repositories have created new channels of dissemination that instructors need to know about and use judiciously (Santana Garriga et al., 2023). Contreras Cázarez and León Duarte (2025), in a study of 624 higher education instructors in Mexico, the United States, and Canada, found "a direct, positive, and significant association" between digital teaching competence and scientific communication competence. Scientific communication is thus a responsibility shared by instructors and universities alike. Barros and Turpo (2022) establish that faculty scientific output improves substantially when institutional conditions are favorable, above all access to bibliographic resources, time for research within the academic workload, and support for taking part in academic dissemination venues.

Against this backdrop, the profile of the teacher-researcher has gained prominence in debates on educational quality. Munguía-Reyes and Garduño-Mendoza (2022) point out that to think of a teacher-researcher "entails a permanent practice of reviewing and analyzing what one does in the classroom every day" (p. 21). They identify three axes that give the figure its shape: "research for teaching, the researcher as teacher, and the teacher as researcher" (p. 22), which shows that there is no single way to be a teacher-researcher. In Latin American universities, this link is often conditioned by structural factors such as academic workload, the availability of resources, and the training level of the faculty, so the research profile has to be analyzed not only as an individual attribute but as an institutional construction.

Research competence lies at the core of the teacher-researcher profile. Mendioroz et al. (2022) propose that this competence "promotes attitudes of permanent inquiry" (p. 2) and draws on critical, systemic, reflective, and creative thinking. In their study of preservice teachers, the same authors also identify a gap between perceptions of one's own research competencies and actual performance, concluding that "students are not aware of their shortcomings or of their training needs, something that is essential for learning to learn" (p. 1). This disconnect suggests that it is not enough for institutions to offer research training opportunities. They also need strategies that help instructors see their own gaps clearly and commit actively to their development as researchers.

Teaching and research, moreover, share a formative purpose: research supplies teaching with up-to-date content, methodological rigor, and critical thinking (Sancho Gil, 2001). Yet this complementarity is not free of practical tensions. Tomàs-Folch et al. (2012) document that in many universities, evaluation and promotion systems tend to overvalue research output relative to teaching, which can discourage academic staff from taking on both functions in balance.

Costa Rica is no exception. In a study at the Universidad Nacional, Montero-Corrales et al. (2024) show that a large share of the faculty devotes most of their appointed time to teaching, while research is carried out at the margins and is constrained by little assigned time, the lack of established research lines and groups, and limited institutional incentives. This finding supports the case for Costa Rican universities, public and private alike, to build an explicit institutional research culture that offers real conditions (time, funding, mentoring, research lines) so that instructors can develop solid research competencies.

At the Universidad Florencio del Castillo specifically, the information available through its institutional channels on research is limited. Its mission nonetheless states an aspiration to "train well-rounded professionals with a humanistic, inclusive, investigative, scientific, technical, and technological outlook" (Universidad Florencio del Castillo, 2025a, para. 3), and its institutional history describes a university that looks to the future by "strengthening research, diversifying its academic modalities, promoting strategic alliances, and renewing its commitment to the development of Costa Rica" (Universidad Florencio del Castillo, 2025b, para. 2).

These institutional statements are not the same as a developed, publicly documented research policy, but they do show that the institution recognizes

research as a necessary part of its educational project. The gap between an institutional discourse that names research as an aspiration and the absence of a consolidated, visible research policy, structure, or culture is part of what justifies asking which research competencies UCA teaching staff currently have, and which institutional conditions exist, or are missing, for developing them.

This article therefore aims to identify the research competencies of the teaching staff at the Universidad Florencio del Castillo and, in particular, the perceptions, skills, and challenges instructors report regarding research and scientific communication. Understanding these aspects in a group of educators sheds light on how they meet one of the demands of the teaching vocation, and it makes it possible to propose actions that develop or strengthen their research competencies so that they can take an active part in solving problems in their professional settings.

Methods and materials

Approach

The study is quantitative, since data collection and analysis rested on the numerical measurement of responses to the instrument, which made it possible to quantify the frequency and relative weight of the perceptions, skills, and organizational conditions that teaching staff reported. It is descriptive: the aim was not to establish causal relationships between variables or to manipulate any of them but to characterize, as they exist, the research competencies of teaching staff at the Universidad Florencio del Castillo. It is also cross-sectional, as the data were collected at a single point in time, the second four-month term of 2025, with no follow-up of how the variables evolved afterward. Combining these three attributes suits the purposes of the research, because analyzing the responses together serves to determine the characteristics of a population group, here the research competencies of the university's teaching staff, without implying a longitudinal comparison or an intervention in the conditions under which they carry out research.

Study population

The study population consisted of the teaching staff of the Universidad Florencio del Castillo, Costa Rica. The study followed a census design: rather than draw a sample, it included every member of the population. The inclusion criterion was an active appointment with the university in the second four-month term of 2025, which yielded a total population of 98 people. The instrument was sent to all of them through their institutional email accounts, and the response rate was 100%.

Data collection techniques

Data were collected with a self-administered questionnaire survey of 26 questions grouped into four variables: perception, skills, organizational factors, and characteristics of the study population. The questionnaire was administered in August and emailed to the population through institutional accounts. Once the responses came in, a database was organized by the variables of interest to produce

the results.

The instrument used dichotomous questions (yes/no) to obtain categorical responses on specific aspects of the variables analyzed. To probe the intensity of participants' attitudes and judgments, it also included 5-point Likert-scale questions, which measured the population's degree of agreement or disagreement.

Analysis techniques

The information collected was processed and analyzed with descriptive statistics, which served to organize, summarize, and present the data in an orderly way and so make them easier to interpret. For the closed questions (dichotomous and Likert-scale), absolute frequencies and percentages described the distribution of responses on each study variable, supported by graphs and tables that allow the behavior of the data to be examined more closely.

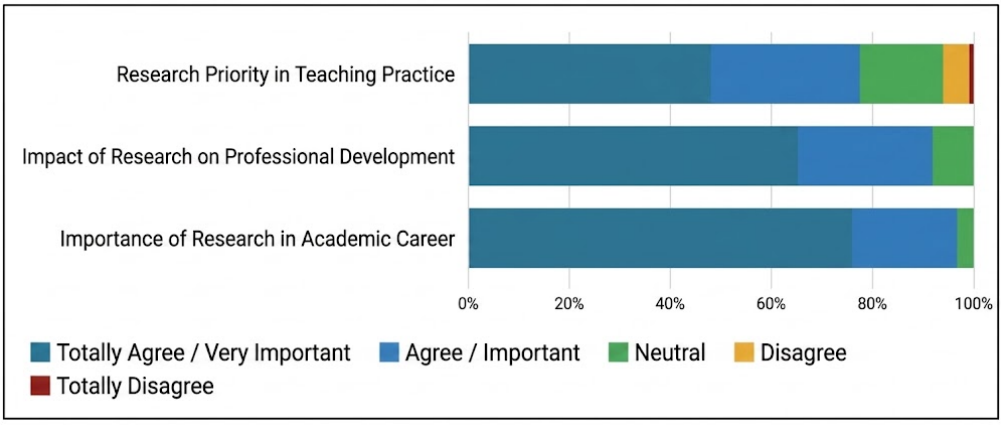
Results and discussion

Teaching staff's perceptions of the research process

The survey opened with three questions on teaching staff's perceptions of research (see Figure 1). The results show a positive assessment among the faculty surveyed, as detailed below. Asked about the importance of research in the academic career, most faculty members rated it very important (about 77%), and a further 20% agreed, for a cumulative positive response of nearly 97%. This suggests that faculty widely recognize the relevance of research to their professional development.

Figure 1

Teaching staff's perception of the importance of research



Source: Authors' own elaboration from the survey results, 2026.

A similar pattern appears for the impact of research on professional development: about 65% of faculty chose the most favorable category and another 27% chose "agree," again a cumulative positive perception above 90%, with the

remaining 8% or so taking a neutral position.

The results shift, however, when respondents are asked whether research is a priority in daily teaching practice. Here, about half of the faculty strongly agreed, a smaller share than on the earlier questions. Around 15% answered neutrally, and 7% disagreed or strongly disagreed. These results show that although faculty recognize the importance of research for the academic career and professional development, this recognition does not carry over into everyday teaching practice. Put differently, valuing research is one thing and prioritizing it among the daily activities of teaching is another.

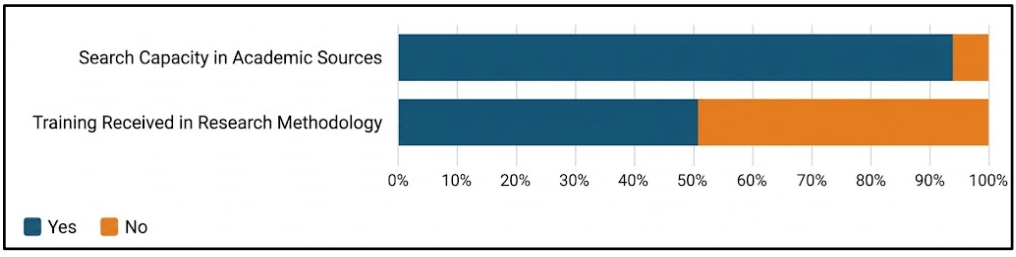
This gap between perception and practice is not an isolated finding. It matches the point made by Tomàs-Folch et al. (2012), who observe that the tension between teaching and research sharpens precisely in day-to-day practice. It also reinforces what Montero-Corrales et al. (2024) found in the Costa Rican context, where university faculty acknowledge the value of research but are kept from carrying it out by concrete institutional conditions (appointment time, the absence of established research lines, scarce incentives) rather than by a lack of individual conviction. It likewise ties in with the work of Li and Yang (2024), whose empirical evidence shows that time given to curricular teaching competes directly with research time.

Research skills

The survey also examined the research skills that teaching staff say they have, organized according to the four-group taxonomy of Ríos Cabrera et al. (2023) described in the Introduction. The instrument included two dichotomous questions on basic operational skills (see Figure 2) and eight further five-point Likert-scale questions probing the cognitive, methodological, and communication skills of the research profile (see Figure 3).

Figure 2

Teaching staff's information-searching ability and methodological training



Source: Authors' own elaboration from the survey results, 2026.

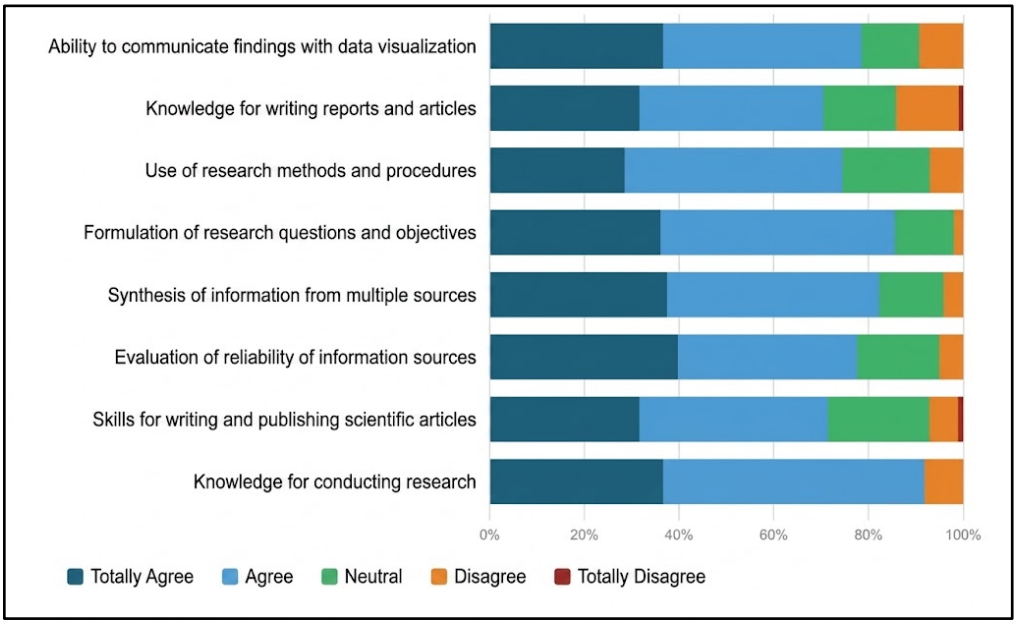
The results reveal a difference between the two skills. Some 93.9% of faculty said they can search for information in academic sources such as libraries, repositories, and databases, which points to a widespread command of this basic instrumental skill. By contrast, only 61.2% reported formal training in research methodology that would enable them to carry out a study from scratch on a topic of interest. A gap of more than thirty percentage points suggests that much of the

faculty developed their information-searching ability on their own or through their schooling, without necessarily receiving structured methodological preparation for conducting complete research processes.

This finding is consistent with the distinction between the declarative and executive dimensions of research competencies drawn by Juárez Popoca and Torres Gastelú (2022) and by Kataeva and DeYoung (2018): knowing how to locate information does not, by itself, guarantee the ability to apply the steps of the scientific method autonomously and rigorously in a specific study. Digital information management is only the starting point of a process that, to be completed soundly, requires explicit methodological training, which barely six in ten UCA instructors currently have. Li and Zhang (2022) add that mentoring and the work environment mediate research self-efficacy, which helps explain why knowing how to search for information does not mean being able to carry out research independently; doing so requires developing further research skills.

Figure 3

Teaching staff's self-perception of their research skills



Source: Authors' own elaboration from the survey results, 2026.

The eight percentages in Figure 3, for their part, show a progression: self-perception among faculty declines as skills move from the beginning of the research process toward its close. General knowledge for conducting research and the formulation of questions and objectives top the list of best-rated skills, while writing research reports and articles ranks last, more than twenty percentage points below the top. This hierarchy matches the four groups proposed by Ríos Cabrera et al. (2023) and points to something more specific than a general shortfall: UCA faculty conceive and carry out research without much difficulty, and what they find hard is

turning it into a publishable scientific product.

That the lowest-rated item is precisely the writing of reports and articles points to a specific gap rather than a general weakness in faculty research capacity. The final stretch of the process demands command of editorial conventions, citation norms, and specialized writing, which searching, synthesizing, and formulating questions, all rated well, do not require. Faculty can therefore feel competent in the latter without being equally competent in formal academic writing. This agrees with Hendy et al. (2024) and Santana Garriga et al. (2023) on writing the scientific article, a recurring constraint even among those with the training and experience needed to do research.

The contrast follows the same logic as the one Castro Sandoval and Silva Monsalve (2023) draw between instrumental skills and skills aimed at communicating the knowledge produced. UCA faculty see themselves as more competent in the early stages of research (searching, synthesizing, formulating questions) than in the final stage of communicating it in writing. The distance between the 93.9% perceived mastery of information searching and the 70.4% perceived mastery of writing reports and articles fits with the fact that only six in ten instructors have received formal training in research methodology.

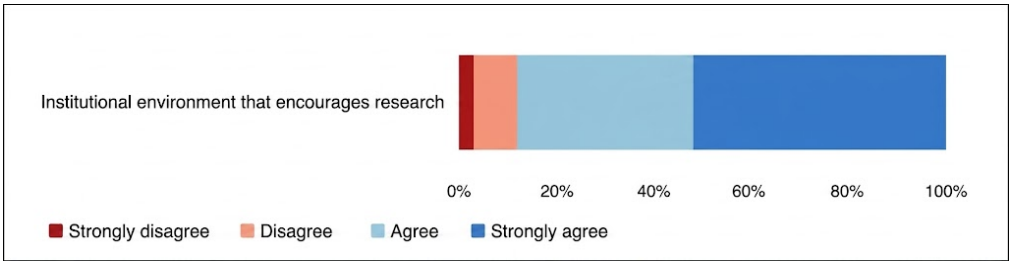
The open-ended responses reinforce this pattern. One participant acknowledged having research knowledge but considered it necessary to update it with expert guidance, noting, “I have knowledge, but it is not very up to date. I try to do it on my own, but I think it is more worthwhile with a guide.” Another called for “strengthening the development of research skills and capacities in teachers and students,” since, in that person’s view, these training gaps begin in secondary school. These testimonies echo the gap between self-perception and actual performance documented by Mendioroz et al. (2022) and suggest that strengthening UCA faculty’s research skills calls for guidance and continual updating throughout the professional career, not just initial training. Tran et al. (2020) reach a similar conclusion: their Delphi study identifies mentoring and continual updating, rather than initial training alone, as a key factor in publishing.

Organizational environment and the promotion of research

Close to 90% of respondents consider that the Universidad Florencio del Castillo creates an environment that encourages research among its teaching staff (Figure 4). Yet only 34 people, about 34%, said they have time to devote to carrying out research. In other words, nearly two in three instructors see their workload as a constraint on research, and lack of time was the most consistent answer to the question about the main barriers they face.

Figure 4

Teaching staff’s self-perception of their research skills



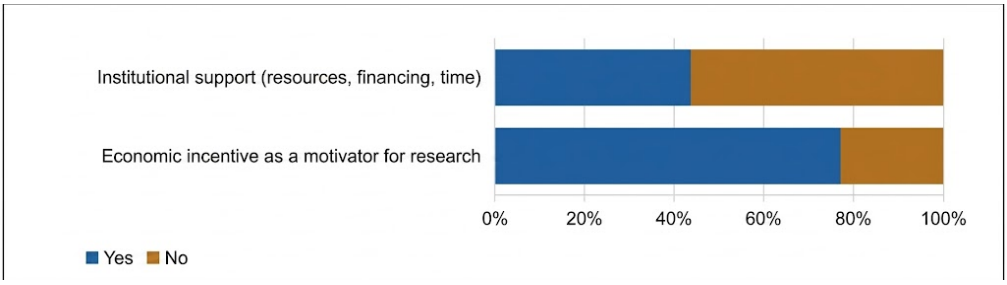
Source: Authors' own elaboration from the survey results, 2026.

The results also show mixed perceptions about institutional support for research activities. Of respondents, 55.2% said they receive no institutional support in the form of resources, funding, or time, while 44.8% said they do. Orfan et al. (2024) indicate that, for faculty, organizational conditions are an aspect that can be strengthened to encourage participation in research.

As for incentives, 74 respondents said they would devote more time to research if a financial incentive or some form of recognition were offered for publishing, compared with 22.9% who said otherwise. This is consistent with Condor Surichaqui et al. (2025) and Le et al. (2024), who document that most university instructors would be willing to write scientific articles, motivated by financial incentives as well as by the recognition and prestige that publishing brings, which marks these mechanisms as a relevant motivator for committing to research. Relating the two variables shows that interest in such mechanisms holds both among those who perceive institutional support and among those who do not. Specifically, 71.7% of those who reported no institutional support said they would devote more time to research given incentives or recognition, a share that rises to 83.7% among those who do perceive support (see Figure 5).

Figure 5

Perception of institutional support and willingness to devote time to research



Source: Authors' own elaboration from the survey results, 2026.

Conclusions

Teaching staff at the Universidad Florencio del Castillo value research as a central component of their academic careers and professional development, and they recognize its contribution to their growth as professionals both inside and

outside the classroom. This valuation weakens, however, when the question turns to research as a priority in daily teaching practice. In short, research occupies a larger place in what faculty value than in what they do every day.

Faculty have solid skills in the early stages of the research process, particularly in searching for information in academic sources. Writing research reports and articles is the lowest-rated skill, at a notable distance from the rest. This hierarchy locates the shortfall in the final stage of the research process, written scientific communication, and not in faculty research capacities as a whole. A considerable share of the faculty has no formal training in research methodology, which is related to the difficulty of writing publishable scientific products.

According to faculty perceptions, the Universidad Florencio del Castillo provides an environment that encourages research among its teaching staff. That favorable perception contrasts with the time actually available for research, which only a small part of the faculty has. Lack of time is the barrier faculty cited most often. A wide gap separates the institutional environment, perceived as favorable, from the real conditions of time available to do research.

The teaching staff of the Universidad Florencio del Castillo value research, have the skills to start research processes, and perceive a favorable institutional environment. The material conditions that sustain that disposition, in particular time assigned within the academic workload and formal training in methodology and scientific writing, do not yet match that valuation. In its teaching staff, the university has a favorable starting point for building an institutional research culture. Strengthening that culture requires concrete structural conditions, among them time, training, and mentoring, which are currently insufficient.

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