








# Accreditation: Evaluating research standards in Peruvian Universities

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**Abstract**– *The accreditation of university institutions aims to seek educational excellence and raise quality indicators in the services they provide. The objective of the study was to analyze the standards related to scientific research of university teaching professionals. The methodology developed was a quantitative, descriptive, transversal, and non-experimental design. The population was made up of 320 professors from various public and private universities with the criterion of having experience in the accreditation process. The inclusion criteria were that the professors worked in the engineering faculty of the different universities between June and November 2023 and that they had experienced the accreditation process. The variable Evaluation of research standards in Peruvian universities consists of two dimensions: Research, technology and innovation and Intellectual property with 20 items. The instrument was adapted and validated by 5 specialists, undergoing a pilot test, obtaining a reliability of 0.9. The questionnaire will be applied through Google forms (in virtual mode). The results were presented in tables and the respective ethical principles were included during the research process. The results show that accreditation is a process that needs to be socialized throughout the organization to promote the culture of quality management framed in compliance with quality standards in research, for which it is necessary to comply with the planning and execution of the research budget as well as generate new researchers with the commitment to comply with research standards as part of their personal and institutional.*

**Keywords**–Accreditation, university, higher education, and research.

## I. INTRODUCTION

Achieving accreditation represents a crucial challenge for public university institutions, since it implies consolidating prior licensing activities that ensure the quality of educational services, as well as efficient administrative management. In this context, the implementation of mandatory licensing and the search for educational excellence through university accreditation are emerging as fundamental elements [1], [2].

These processes have generated the need to reevaluate and improve various aspects of institutional management, including course planning, communication between faculties and the effectiveness of educational programs. The University Act requires research in professional education, but several universities lack reliable data on their academic management [3].

Professional schools comply with the Law of the National System of Evaluation, Accreditation and Certification of Educational Quality (SINEACE) by adapting self-evaluation, highlighting the need for proposals to organize it. Formative research, essential in professional training, must be integrated into the curricula to facilitate self-evaluation and obtain accreditation. Thus, educational quality and university accreditation emerge as essential pillars in the constant process of re-adaptation and continuous improvement of educational institutions. [4], [5].

Most professors show a significant lack of knowledge of the university accreditation process, as their focus is on teaching classes and strict compliance with the regulations established by the university. This limited focus reflects a lack of familiarity with the specific procedures and criteria required for accreditation, resulting in peripheral participation in the accreditation process [6]–[8].

In addition, both teachers and study materials exhibit a lack of understanding of the concept of accreditation, both in its historical context and in its contemporary application [9], [10]. This lack of knowledge is manifested in the tendency to avoid attributing a precise physical meaning to the concept, which suggests a lack of depth in the analysis and interpretation of this complex phenomenon [8].

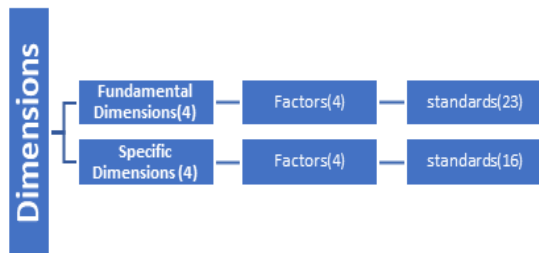
Resolution 000010 of SINEACE in Peru, issued in 2022, approves the Quality Model for the Institutional Accreditation of Universities. This model defines dimensions, factors and standards that evaluate university educational quality. It includes areas such as institutional management, teaching, research, and social responsibility. The standards are evaluation criteria to determine compliance with quality requirements during the accreditation process [11]. This model

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seeks to guarantee academic excellence and contribute to the country's development, as shown in graph I.

GRAPH I

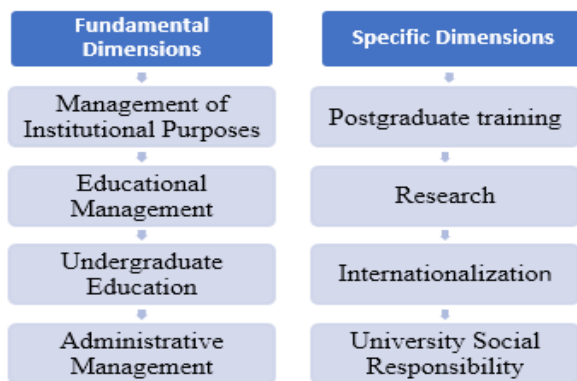
ACCREDITATION MODEL, DIMENSIONS, FACTORS, AND STANDARDS



In the current Quality Model, the fundamental and specific dimensions play crucial roles, with research being a central element. In this research, we will focus on the specific dimension related to research. Given the growing relevance of research in the current scenario, it has become a fundamental axis that influences all aspects of educational quality. In addition to having quality infrastructure and teachers, it is essential to keep up to date with emerging trends and technologies to adapt to the ever-changing world. In this context, university research is a vital element to guarantee academic excellence and relevance in the educational and scientific fields. Graph II shows the fundamental and specific dimensions.

GRAPH II

Fundamental and specific dimensions, according to Sineace



Modelo de Calidad, sugerido por Sineace [11].

In the specific dimension of research, there are standards related to technological development, innovation, and intellectual property. Specifically, standards 30, 31 and 32 address these crucial aspects of research. These standards play a fundamental role in ensuring that research processes meet the highest quality standards and are aligned with the needs

and demands of today's environment. Their proper implementation ensures excellence and relevance of research in academia and science. Table I shows the standards in detail [11].

TABLE I  
STANDARDS RELATED TO RESEARCH

6. Research	6.1. Research, technological development, and innovation	30. The university ensures the relevance, effectiveness and impact of the research, technological development and innovation activities developed by its professors and researchers.
		31. The university ensures the timely dissemination of the results of its research, technological development and innovation activities among its members and the academic community in general and promotes the incorporation of the results of its research into the contents of its.
	6.2 Intellectual property and copyright	32. The university guides and promotes activities related to intellectual property and copyrights, as well as the management of economic income derived from the creation and production generated in research, technological development, and innovation activities under its sponsorship.

Standards 30, 31 and 32 focus on key aspects of research, technological development, and innovation at the university. Standard 30 ensures the relevance, effectiveness and impact of research and development activities carried out by faculty and researchers. Standard 31 focuses on the timely dissemination of the results of these activities, both among members of the university community and in the academic environment in general, promoting their incorporation into institutional content. Finally, standard 32 addresses the guidance and promotion of activities related to intellectual property and copyrights, as well as the management of economic income derived from the research and production generated. These standards ensure effective and ethical management of research and innovation at the university.

Self-evaluation is essential to meet the quality standards required by law. However, there are professionals at various levels in the university who lack understanding of the accreditation process, which makes it difficult for them to participate effectively. Peruvian regulation establishes a quality model that evaluates institutional management, teaching, research, and social responsibility. In this model, the research process is fundamental, including innovation and

technology. In this way, educational excellence is guaranteed through research in Peruvian universities.

The research is based on Robert K. Merton's Theory of Scientific Production. This theory examines the factors that influence the production of scientific and scholarly knowledge within research and higher education institutions [12]. Merton's Theory of Scientific Production focuses on the incentives, norms, and values that drive researchers and scholars to conduct research, publish results, and contribute to the advancement of knowledge [13]. Research at the university level is essential to foster a research mentality among students. This contributes to the socioeconomic development of the country. It also helps to understand and improve the processes of research, academic evaluation and scientific policies in higher education institutions [14].

The second dimension related to intellectual property is developed under the theory of Burton R. Clark, who is a representative of the Theory of Academic Organization and University Research [15], [16]. He discusses how universities organize and support research, how scientific communities develop within academic institutions, and how research activities relate to the broader mission and goals of universities. His contributions have been instrumental in understanding how universities can foster an environment conducive to high-quality research and the advancement of knowledge. This theory is relevant as it significantly influences the understanding of how universities organize, support, and promote research in their institutional contexts [17], [18].

In the academic and research field, the "Research Life Cycle Theory", whose referent is Donald Stokes, stands out. This theory describes the evolution of research from its origin to its application. Likewise, the process of integrating it to the educational community, especially to researchers. Under this precept it is necessary that research processes must be disseminated [19].

In view of this assertion, the Theory of Innovation Diffusion arises, which has Everett Rogers as its referent. Rogers' theory details and explains how ideas are adopted and disseminated to the community, the society where they are developed [19], [20].

Following the above, it was established as a general objective to analyze the standards related to scientific research in university education. The objective responds to the strengthening educational excellence through the accreditation process.

## II. METHODOLOGY

The research was developed under a quantitative, descriptive, non-experimental, and cross-sectional approach. The population was 1911 professionals in university teaching [21]. The inclusion criteria were that the professors worked in

the engineering faculty of the various universities between June and November 2023 and that they had participated in the accreditation process. Professors working in the faculty but with the status of invited to teach were excluded. It should be noted that simple random sampling was used with a margin of error of 0.5, and a confidence level of 95% [20]. To calculate the sample size, the finite sample formula was used, and the result was 320. Likewise, the questionnaire was applied to professors of national universities that have engineering faculties and that underwent the accreditation process; only those who gave their informed consent were interviewed [22].

The variable Evaluating research standards in Peruvian universities consists of two dimensions: Research, technology, and innovation and intellectual property with 20 items.

The instrument was adapted and validated by 5 specialists. It should be noted that the validators are experts in the research area recognized by the National Science Council and who gave divergent points of view and caused the modifications to the questions in the questionnaire. After validation, the instrument was subjected to a pilot test obtaining a reliability of 0.9. The questionnaire "Standards related to research" was applied through the Google form (in virtual mode), the questions are detailed in Table III.

The virtual application of the questionnaire was feasible for the collection of information and for the measurement of the stated objectives, respectively. Subsequently, teachers were asked to voluntarily fill out the informed consent form and complete the respective instruments for approximately 15 minutes per person.

Likewise, data cleaning, statistical processing with SPSS V 26, and descriptive analysis of the data were performed. The results were presented in tables and during the research process the respective ethical principles were included. The survey technique was applied (in virtual modality), being viable for the collection of information to measure the objectives set. The ethical principles of autonomy, justice, beneficence and nonmaleficence were applied throughout the process [23], [24]. The ethical principles proposed were developed at the time of applying the instrument and at the time of elaborating the results. These principles were paramount for each member of the team, since obtaining the data was a slow process, and in any case, they were honest and transparent at all stages of the research.

## III. RESULTS

Quality and excellence in university research are fundamental pillars for the academic and scientific development of an educational institution. In this context, compliance with established research standards is a crucial indicator of the solidity and commitment of universities to the generation of quality knowledge. The results obtained reveal an interesting

picture regarding compliance with these standards in several public universities. The percentage results are shown in graph III below.

GRAPH III

PERCEPTION OF COMPLIANCE WITH RESEARCH STANDARDS IN PERUVIAN UNIVERSITIES



The study indicates that most university professors in several public universities, specifically 63%, comply with the standards established in terms of research norms. However, 31% do not meet the requirements established by Sineace. On the other hand, a small percentage, 6%, have not expressed their opinion or are unaware of the situation.

Thus, most university professors in the institutions analyzed comply with the standards established for research. However, there is a significant proportion that does not meet the requirements established by Sineace, which indicates the need to improve adherence to these regulations. In addition, the small percentage of professors who did not express an opinion or are uninformed suggests the importance of more effective communication and greater awareness of research standards at the university level.

TABLE II

PERCENTAGE OF THE DIMENSIONS OF THE RESEARCH STANDARDS

Dimensions	High		Medio		Low	
	N	%	N	%	N	%
D1: Research, technology, and innovation	220	69	87	27	13	4
D2 intellectual property	180	57	113	35	27	8

According to the data in the table II, it is observed that 69% of the respondents rated dimension D1 (Research, technology, and innovation) as high, while 27% rated it as medium and only 4% rated it as low. This suggests that most respondents perceive research, technology, and innovation as important aspects of their academic activities. On the other hand, in dimension D2 (Intellectual Property), 57% of

respondents rated it as high, 35% as medium and 8% as low. This indicates that there is also a generally positive perception of the importance of intellectual property in their academic work. These results suggest that respondents value and recognize the relevance of research, technology, innovation, and intellectual property in their academic work.

TABLE III

PERCENTAGE OF THE DIMENSIONS OF THE RESEARCH STANDARDS

Research standards		Y		N°		ST	
		N°	%	N°	%	N°	%
D1 Research, technology and innovation	Do university teachers receive training to maintain and increase production in research, technological development and innovation once they are in place?	320	100	0	0	0	0
	Do university teachers receive training to maintain and increase production in research, technological development and innovation once they are in place?	179	56	141	44	0	0
	Do university teachers contribute with their research products to the support of research, technological development and innovation?	269	84	51	16	0	0
	Do university professors contribute with their research products to support research, technological development and innovation?	250	78	38	12	32	10
	Are university teachers linked to research centers?	221	69	70	22	29	9
	Are university faculty members linked to institutions that fund research projects of interest to the university?	131	41	160	50	29	9
	Are university professors recognized as researchers with publications or patents in their research areas?	230	72	80	25	10	3
	Does the university implement actions to strengthen research skills and increase the number of research professors?	192	60	122	38	6	2
	Is there evidence of information on the development of research innovation products and outcomes of university faculty research?	170	53	141	44	10	3
	Is there a system or record of research as a reference for university professors?	240	75	70	22	10	3
D2 Intellectual Property	Has the research work of university professors concluded with products that have been	160	50	131	41	29	9
	Have the research products of university professors resulted in registered patents?	122	50	131	41	29	9
	Do university professors disseminate their research through publication in indexed journals?	192	60	99	31	29	9
	Do the results of the research conducted by university professors generate new lines of research?	179	56	99	31	42	13
	Do university professors consider it important to be open to the requirements established by high-impact scientific journals?	282	88	28	9	10	3
	Do university professors seek to disseminate their research in scientific journals that are rigorous in the selection of content for publication?	272	85	29	9	19	6
	Does the university promote the funding of scientific articles?	109	34	160	50	51	16
	Does the university finance the participation of its researchers in its own and international events?	131	41	160	50	29	9
Does the university establish indicators on publications and patents to identify its global positioning?	179	56	131	41	10	3	
Does the university use metrics to compare its position with similar institutions worldwide?	179	56	122	38	19	6	

The results on research, technology and innovation indicate that 100% of university professors receive training to maintain and increase production in research, technological development, and innovation once they are in their position.

However, only 38% actively contribute research products to support these areas. Regarding the connection with research centers, 41% are linked, while 69% are related to institutions that finance projects of interest to the university. On the other hand, 22% of faculty have no evidence of information on the development of research innovation products. It is essential to address these disparities and promote greater participation and collaboration in research and technological development activities among university professors.

The results on intellectual property indicate that 88% of university professors consider it important to be open to the requirements established by high impact scientific journals, while only 28% of them do not consider it important. In addition, 85% of professors seek to disseminate their research in scientific journals that are rigorous in the selection of content for publication, and only 29% do not.

On the other hand, only 34% of universities promote the funding of scientific articles, while 50% of universities fund the participation of their researchers in their own and international events. It is essential that universities strengthen their support for the dissemination of research and promote the active participation of professors in high-impact scientific events and journals.

#### IV. DISCUSSION AND CONCLUSION

Compliance with research standards allowed identifying critical factors in the inadequate planning of research and publications, the lack of training of full-time teachers to produce scientific articles that meet quality standards, and the absence of efficient mechanisms to improve quality control.

The lack of planning resources, budgets, resource management, scientific production, patents in teachers puts at risk of developing the interest of teachers to get involved in their training in this field. Also, the research process presents challenges that include inadequate planning of research and publications, insufficient training in research topics, scarcity of financial resources, lack of adequate information for research faculty, poor communication about the functions of management, lack of efficient and effective mechanisms (procedures), as well as the lack of defined sub-processes that promote continuous improvement. These aspects point to critical areas that require attention to strengthen the effectiveness and efficiency of the research process [5], [11].

The research process is influenced by several variables in the academic and work environment. The demand for research by universities, budget cuts that affect investment in research, and job offers in public universities with higher remuneration are key elements. The priority given by the state to public universities, the presence of consultants offering research

services, the entry of new universities and the opening of private research centers also shape the landscape, influencing the dynamics and direction of the research process [17], [18], [21], [22].

In addition, the research process is characterized by the presence of highly trained teachers, an enabling work environment, advanced technology, a comfortable infrastructure, and the availability of a physical and virtual library for the development of innovation. In addition, the careers offered at the universities are designed to meet the demands of the sector in terms of research. The institution stands out for its focus on interculturality, integrating diverse perspectives to enrich the research process. Likewise, the research process at the University is distinguished by the generation of publications in internationally recognized journals, the participation in international training on research topics, and the outstanding presence with presentations at national and international events. The university is accredited, supporting its commitment to quality standards in research [3].

The degree programs offered at the institution are designed to facilitate research through integration agreements, establishing effective links with both public and private sector organizations that require specialized research. In addition, the university offers doctoral programs that promote research, consolidating its position as an academic entity committed to research excellence [4].

Therefore, the implementation of the accreditation system is not only a prestige for the institution. It is also being in the ranking of the best universities in the world, it is applying a quality management system that must be integrated into the institution's annual operating plan. institution to mitigate or eliminate the incidence of critical factors, so it is necessary to insert a risk plan focused on continuous improvement of processes.

It is suggested to investigate the impact that accreditation has on universities, both public and private, and the perceptions of researchers in the licensing process. Finally, continuous evaluations are suggested, without waiting for the dates established by visits to universities to obtain licensing.

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## REFERENCES

- [1] J. L. Almuñías Rivero and J. Galarza López, “Acreditación universitaria y evaluación institucional: un estudio comparado desde la Red de Dirección Estratégica en la Educación Superior,” *Rev. San Gregor.*, vol. 71, no. 6, pp. 307–313, 2020, doi: 10.36097/rsan.v0i45.1717.
- [2] J. M. Delgado Bardales *et al.*, “Sistema de gestión de la calidad basado en estándares de licenciamiento y acreditación en Universidades,” *Cienc. Lat. Rev. Científica Multidiscip.*, vol. 6, no. 2, pp. 0–1, 2022, doi: 10.37811/cl\_rcm.v6i2.2040.
- [3] M. Valdivieso Rodriguez, M. H. Sjogren, L. E. Podesta Gavilano, Z. M. Triana Contreras, M. Rodriguez Castro, and M. F. Farfán Delgado, “Importance of the international accreditation of medical schools,” *An. la Fac. Med.*, vol. 84, no. 3, pp. 363–366, 2023, doi: 10.15381/anales.v84i3.26075.
- [4] J. S. Moreira-Choez, C. L. Mera-Plaza, M. C. Arias-Iturralde, and M. B. Reinoso-Ávalos, “Evaluación y acreditación de instituciones de Educación superior,” *Rev. Científica Multidiscip. Arbitr. YACHASUN*, vol. 11, pp. 71–90, 2022, doi: 10.46296/yc.v6i11edespssep.0223 EVALUACIÓN.
- [5] S. Sevillano, “El sistema de acreditación universitaria en el Perú: marco legal y experiencias recientes,” *Rev. Educ. y derecho*, no. 15, pp. 1–8, 2017, [Online]. Available: <https://revistes.ub.edu/index.php/RED/article/view/18400/20952>.
- [6] L. A. Medina-Orozco, “La acreditación en alta calidad de la Educación Superior. Expectativas, efectos y retos,” *Rev. Electrónica en Educ. y Pedagog.*, vol. 10, no. 6, pp. 61–74, 2022, doi: 10.15658/rev.electron.educ.pedagog22.04061004.
- [7] E. R. Tuesta Torres, X. Cabrera Cabrera, and E. V. Ramos Ferañan, “La autoevaluación como parte del proceso de acreditación en la Universidad ‘Señor de Sipán’, Perú,” *Rev. Cient. Epistemia*, vol. 1, no. 1, pp. 1–12, 2017, doi: 10.26495/re.v1i1.578.
- [8] J. E. Martínez Iñiguez, S. Tobón, and A. Romero Sandoval, “Problemáticas relacionadas con la acreditación de la calidad de la educación superior en América Latina,” *Innovación Educ. (México, DF)*, vol. 17, no. 73, pp. 79–96, 2017.
- [9] C. H. González-Campo, G. Murillo-Vargas, and M. García-Solarte, “Effect of high-quality accreditation of knowledge management in higher education institutions,” *Form. Univ.*, vol. 14, no. 2, pp. 155–164, 2021, doi: 10.4067/S0718-50062021000200155.
- [10] L. Portocarrero-Sierra, J. A. Restrepo-Morales, and J. E. Arias-Calderón, “Impact evaluation of high quality accreditation in Colombian higher education institutions,” *Form. Univ.*, vol. 13, no. 6, pp. 37–50, 2020, doi: 10.4067/S0718-50062020000600037.
- [11] SINEACE, “Resolución Consejo Directivo N ° 000110-2022-Sineace/Cdah.” 2022, [Online]. Available: [chrome-extension://efaidnbmnnnibpcajpcgclefindmkaj/https://repositorio.sineace.gob.pe/repositorio/bitstream/handle/20.500.12982/7117/RESOLUCIÓN\\_DEL\\_CONSEJO\\_DIRECTIVO-000017-2022-CDAH.pdf?sequence=1&isAllowed=y](chrome-extension://efaidnbmnnnibpcajpcgclefindmkaj/https://repositorio.sineace.gob.pe/repositorio/bitstream/handle/20.500.12982/7117/RESOLUCIÓN_DEL_CONSEJO_DIRECTIVO-000017-2022-CDAH.pdf?sequence=1&isAllowed=y).
- [12] L. A. Orozco and C. D. Andrés, “Robert K. Merton (1910-2003). La ciencia como institución,” *Rev. Estud. Soc.*, vol. 16, no. 2, pp. 1–20, 2010, [Online]. Available: [url: http://journals.openedition.org/revestudsoc/12852%0A%0ALos](http://journals.openedition.org/revestudsoc/12852%0A%0ALos).
- [13] E. Olaya-Escobar, J. Berbegal-Mirabent, and O. Duarte-Velasco, “Factores que impulsan a los investigadores a participar en contratos de investigación y desarrollo,” *TEC Empres.*, vol. 15, no. 3, pp. 18–36, 2021, doi: 10.18845/te.v15i3.5761.
- [14] J. A. Suyo-Vega, M. E. Meneses-La-Riva, V. H. Fernández-Bedoya, S. A. Alvarado-Suyo, and H. G. Ocupa-Cabrera, “Exploring the outcomes and obstacles of university entrepreneurship education: Evidence from scientific literature,” *Proc. LACCEI Int. Multi-conference Eng. Educ. Technol.*, pp. 1–7, 2023, doi: 10.18687/LEIRD2023.1.1.431.
- [15] G. Yamada and J. F. Castro, *Calidad y acreditación de la educación superior*. 2020.
- [16] V. S. Walker, “El trabajo docente en la universidad: Condiciones, dimensiones y tensiones,” *Perfiles Educ.*, vol. 38, no. 153, pp. 105–119, 2016, doi: 10.22201/iissue.24486167e.2016.153.57638.
- [17] H. M. Rojas Betancur and R. Méndez Villamizar, “Procesos de formación en investigación en la Universidad: ¿Qué le queda a los estudiantes?,” *Sophia*, vol. 13, no. 2, pp. 53–69, 2017, doi: 10.18634/sophiaj.13v.2i.261.
- [18] V. N. Valero Ancco and M. Pari Orihuela, “Investigación, desarrollo tecnológico e innovación en el modelo de acreditación de la educación superior universitaria peruana,” in *Calidad de la educación*

*superior: gestión estratégica, formación integral y soporte institucional*, 2023.

- [19] R. Fuentes Navarro, “Everett M. Rogers (1931-2004) y la investigación Latinoamericana de la comunicación,” *Comun. y Soc.*, pp. 93–125, 2005, [Online]. Available: <http://www.redalyc.org/articulo.oa?id=34600404>.
- [20] C. Merchán-Hernández and O. Valmaseda-Andia, “The scientific community and the uses of science: An analysis of the orientation of the research activity in the CSIC,” *Rev. Esp. Doc. Cient.*, vol. 41, no. 4, pp. 1–16, 2018, doi: 10.3989/redc.2018.4.1536.
- [21] N. F. Sarthou, M. P. López, E. López Bidone, C. Guglielminotti, and F. Piñero, “Políticas para orientar la investigación: interdisciplina y vinculación con el entorno,” *Ciencia, Docencia y Tecnol.*, vol. 33, no. 66 (set-dic), pp. 1–29, 2022, doi: 10.33255/3365/1316.
- [22] W. Corona Meza, “Caracterización de los componentes de la investigación formativa en la universidad contemporánea en Latinoamérica,” *Rev. Educ.*, vol. 47, no. 1, 2023, doi: 10.15517/revedu.v47i1.51880.