

## Students' research skills: a systematic review article

*Competencias investigativas de los estudiantes: un artículo de revisión sistemática*

Received: 30/03/2025 - Accepted: 06/07/2025

**Julia Salazar Peralta**

<https://orcid.org/0000-0002-8092-8268>

[ssalazarpe21@ucvvirtual.edu.pe](mailto:ssalazarpe21@ucvvirtual.edu.pe)

Universidad César Vallejo. Lima, Peru

**Juan Meléndez Cruz**

<https://orcid.org/0009-0005-3115-5990>

[jmelendezc@utea.edu.pe](mailto:jmelendezc@utea.edu.pe)

Universidad Tecnológica de los Andes. Abancay, Peru

**Marino Cardenas Rivera**

<https://orcid.org/0009-0001-0970-3162>

[mcardenasr@utea.edu.pe](mailto:mcardenasr@utea.edu.pe)

Universidad Tecnológica de los Andes. Abancay, Peru

### Abstract

The main objective of this article was to analyze research skills in students, using a systematic review under the PRISMA protocol. For data collection, inclusion criteria were established that considered articles published between 2021 and 2025 in recognized databases such as Scopus and Scielo, using keywords in English ("investigative skills" AND "students") and Spanish ("*competencia investigativa*"). Likewise, articles published before 2020, those with restricted access, books, and conference proceedings were excluded. After the selection process, 20 articles were included for analysis: 13 from Scopus and 7 from Scielo. The results show that the development of research skills requires fostering curiosity and openness to new ideas, key elements for enhancing this skill. Furthermore, promoting these skills contributes to consolidating a solid academic environment, where the commitment of all educational stakeholders favors learning and strengthens equity, trust, and student motivation. It is concluded that the most effective strategies for fostering investigative skills are those that integrate teaching methodologies geared toward critical thinking and active participation. Finally, incorporating direct experiences with the environment, such as observing living organisms, stimulates scientific thinking from an early age and improves long-term analytical skills.

**Keywords:** investigative skills, skills, strategies.

### Resumen

El objetivo principal de este artículo fue analizar las competencias investigativas en estudiantes, empleando una revisión sistemática bajo el protocolo PRISMA. Para la recopilación de información, se establecieron criterios de inclusión que consideraron artículos publicados entre 2021 y 2025 en bases de datos reconocidas como Scopus y Scielo, utilizando palabras clave en inglés ("*investigative skills*" AND "*students*") y en español ("*competencia investigativa*"). Asimismo, se excluyeron artículos publicados antes de 2020, aquellos de acceso restringido, libros y actas de conferencias. Tras el proceso de selección, se incluyeron 20 artículos para el análisis: 13 provenientes de Scopus y 7 de Scielo. Los resultados evidencian que el desarrollo de competencias investigativas requiere fomentar la curiosidad y la apertura a nuevas ideas, elementos clave para potenciar esta habilidad. Además, la promoción de dichas competencias contribuye a consolidar un entorno académico sólido, donde el compromiso de todos los actores educativos favorece el aprendizaje y fortalece la equidad, la confianza y la motivación estudiantil. Se concluye que las estrategias más efectivas para impulsar las competencias investigativas son aquellas que integran metodologías didácticas orientadas al pensamiento crítico y la participación activa. Finalmente, la incorporación de experiencias directas con el entorno, como la observación de organismos vivos, estimula el pensamiento científico desde edades tempranas y mejora la capacidad de análisis a largo plazo.

**Palabras clave:** competencias investigativas, habilidades, estrategias.

## Introduction

In the international context, students face the challenge of storing and sharing their data, statistical procedures, and instruments in publicly accessible digital repositories. However, the lack of adequate infrastructure or clear policies regulating access and preservation of these materials can limit transparency and the full utilization of scientific knowledge, thus constituting an obstacle to the advancement of academic research (Angeloska-Galevska, 2023).

On the other hand, the development of research skills requires addressing various levels of complexity, ranging from basic skills such as problem formulation and teamwork to advanced capabilities related to analysis, experimentation, and result interpretation. In this regard, the absence of a progressive and structured approach hampers the comprehensive training of future researchers (Juárez Popoca et al., 2022). This issue is compounded by the difficulties many students face, as their instructors do not always select or apply the most appropriate methods to foster such competencies, a fundamental aspect for the correct direction of study and the validity of the knowledge generated (Alvarez-Ochoa et al., 2022).

Moreover, while it is imperative to universalize lifelong and advanced education, promote culture, and generate knowledge for society, challenges persist in the effective integration of university and community actors in collaborative processes. The lack of adequate strategies limits the active participation of the most vulnerable groups, preventing them from becoming active agents of change within inclusive educational and social dynamics (Yucra-Camposano, 2023).

In this context, research competencies demand the development of critical thinking, understood as both a cognitive and attitudinal skill that enables the analysis, evaluation, and structuring of ideas in a reflective and well-founded manner. Etymologically, the term derives from the Greek *kritikos* (the ability to discern) and *kriterion* (standards), emphasizing its relationship with judgment based on solid criteria (Deroncele et al., 2020). From the perspective of cognitive psychology, critical thinking is conceived as a process oriented toward problem-solving, hypothesis formulation, decision-making, and result evaluation. Its quality improves as individuals internalize their cognitive structures and subject them to deep reflection (Espinola & Santos, 2022).

Finally, the development of research competencies entails the ability to analyze, evaluate, and organize information logically and substantively to make well-reasoned judgments. This involves identifying arguments and assumptions, recognizing key relationships, making valid inferences, and evaluating evidence to reach sound conclusions (Ennis, 2011). In this sense, the American Philosophical Association defines critical thinking as a deliberate and self-regulated process that encompasses the interpretation, analysis, and evaluation of information, as well as the explanation of the grounds for a judgment based on evidence, concepts, and contextual criteria (López Mendoza et al., 2022).

Therefore, the general objective of this work was to analyze the research competencies of students through a systematic review following the PRISMA protocol.

## Methodology

For this study, a systematic review method was employed, adhering to the PRISMA protocol for presenting research results. In the process of information retrieval, inclusion criteria were applied, considering articles published between 2021 and 2025, selected from recognized databases such as Scopus and Scielo. The search was conducted using keywords in English (“investigative skills” AND “students”) and in Spanish (“competencia investigativa”). Conversely, exclusion criteria included articles published before 2020, documents with restricted access, books, and conference proceedings.

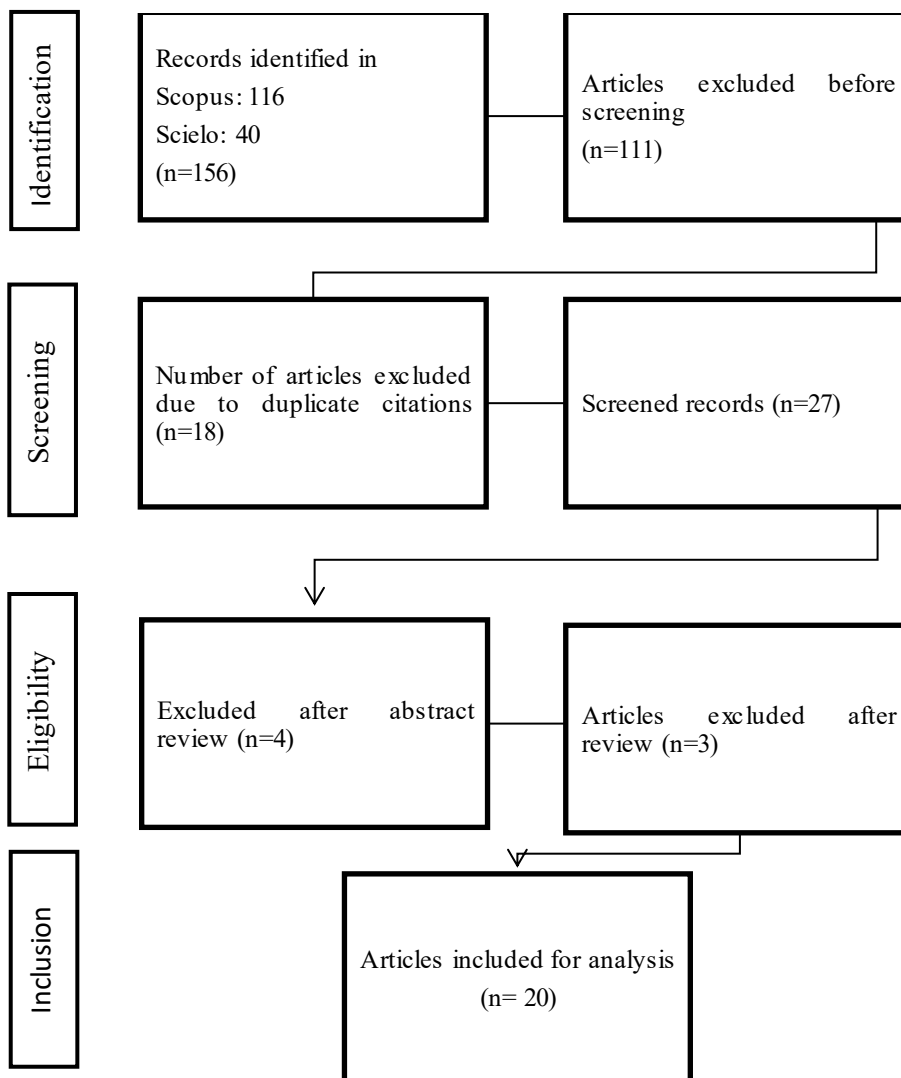
As a result of the selection process, 20 articles were included for analysis: 13 from Scopus and 7 from Scielo. This selection allowed for a thorough and representative analysis of recent scientific production on research competencies in university students.

**Table 1**

*Search chain in academic articles*

Database	Search term	Results	Selected
Scopus	"investigative skills " AND "students"	116	13
Scielo	"competencia investigativa"	40	7
<b>Total</b>		<b>156</b>	<b>20</b>

**Figure 1**  
Flow diagram according to the PRISMA protocol



**Note.** Diagram formatted according to PRISMA with original data

## Results

**Table 2**  
Consolidated summary of results on research competencies

No.	Author	Implications of research competencies
1	Kondowe & Svongoro (2025)	The development of research competencies is crucial to ensuring credibility in judicial processes. The lack of forensic tools, research skills, and access to law can hinder the accuracy and consistency of testimonies, weakening the credibility of accounts presented in court. This demonstrates that, beyond absolute veracity, judicial systems require structured and well-founded narratives to make fair decisions.

2	Iddy et al. (2024)	To develop research competencies in the scientific field, it is essential to employ teaching strategies that promote critical thinking and active student participation. Although practices such as guided reading, the use of visual materials, and scientific experiments can contribute to learning, their effectiveness depends on teaching that prioritizes interaction and scientific reasoning. This study provides valuable insights for improving teacher training and optimizing teaching methodologies in sciences.
3	Sheldrake et al. (2024)	Students' perceptions of science and scientific work influence their interest in developing research competencies and their identity as potential scientists. While many feel informed about science, few see themselves as future scientists. Factors such as curiosity, perseverance, and openness to new ideas are essential in building a scientific identity. Understanding these perceptions can aid in designing strategies that foster interest in research and science among diverse student profiles.
4	Ayotte-Beaudet et al. (2024)	Educational interventions based on the environment can strengthen research competencies in elementary school students. Exposure to observing living organisms in a familiar environment fosters better description and analysis skills, even months after learning. This highlights the importance of pedagogical strategies that integrate direct experiences with the environment to enhance scientific thinking.
5	Afriyie et al., (2022)	Research competencies in forensic accounting are essential for detecting and preventing fraud in a globalized economic environment. The ability to apply reliable principles and methods allows professionals to identify financial irregularities, improve internal controls, and strengthen corporate governance, thereby contributing to transparency and justice.
6	Gordon & Dixon (2021)	The use of global challenges as an educational strategy allows students to develop research and analytical competencies, promoting a research-based curriculum. This methodology not only strengthens technical and sustainability skills but also meets labor market expectations by integrating essential interdisciplinary knowledge for professional training.
7	Skerrett & Smagorinsky (2022)	Literacy teaching must adapt to the reality of students to foster critical thinking and research on relevant social issues. This approach allows for the development of research competencies through pedagogical strategies that integrate identity, social justice, and empathy in learning. Implementing these methodologies in the classroom can enhance students' ability to analyze and act upon their environment, promoting a more informed and engaged citizenship.
8	Reed et al. (2024)	The use of Photovoice as a pedagogical strategy in post-pandemic education enables students to develop research and critical thinking skills by analyzing the visible and invisible characteristics of various communities. By integrating art and visual storytelling into teaching, students not only identify social issues but also communicate their findings more meaningfully. This methodology fosters contextual understanding of data and reinforces the capacity of future professionals to interpret and intervene in community realities from a social and participatory perspective.
9	De Reviere et al. (2024)	The integration of laboratory exercises in an interdisciplinary project-based learning approach allows students to strengthen their research and analytical skills by facing complex challenges inherent in chemical engineering and analytical chemistry. This approach fosters collaboration, critical thinking, and informed decision-making, preparing students for future professional applications in scientific and technological environments.
10	Jackson et al. (2024)	These findings underscore the importance of customizing therapeutic strategies and designing evidence-based digital interventions in collaboration with end users to enhance their effectiveness.

11	Ofem et al. (2024)	The capacity of educational institutions to foster a strong academic environment, build trust with parents, and ensure the commitment of all educational stakeholders is fundamental to improving learning. These findings have direct implications for educational policy formulation, promoting strategies that reinforce equity, trust, and motivation in the school environment.
12	Barra et al. (2024)	It is confirmed that the intention to use ICT favors the development of an entrepreneurial orientation, highlighting the importance of reducing the digital and gender gap in higher education. These findings are key to designing strategies that promote technological inclusion and equity in access to development opportunities.
13	Ipanaqué-Zapata et al. (2023)	Training strategies that strengthen these skills, promoting more efficient access to information and a comprehensive development of research competencies.
14	López-López et al. (2024)	It is recommended to strengthen the methodological training of new researchers and provide greater support to female researchers, thereby promoting equity in scientific production.
15	Vázquez-Rodríguez (2024)	Evaluating research competencies in university students is key, but still faces methodological challenges. The analyzed instruments allow for measuring both acquisition and the effectiveness of pedagogical interventions, although a lack of representativeness in certain disciplines and a tendency toward traditional approaches in validation is evident.
16	Reyes & Oyola (2024)	Health sciences educators exhibit good research competencies, although their performance in scientific dissemination is limited. Furthermore, the university where they work influences their level of research development.
17	Guerra & Peraza (2024)	The implementation of a workshop on research in engineering showed a significant impact on the development of research competencies in Industrial Engineering students, validating the effectiveness of the proposed strategy.
18	Monroy & Chuye (2024)	There is a significant relationship between digital competencies and research attitudes in students, although other factors such as initial training and motivation also influence their development.
19	Roque et al. (2023)	It is proposed to restructure research content in training for Chemistry Education graduates to strengthen their research competencies, using reflective approaches and active methodologies.
20	Carmenate et al. (2023).	A system of teaching tasks was designed to strengthen the ability to design community projects in Physical Education students, highlighting the need to address other professional skills that are still under-researched.

### Importance of research competencies

Students' perceptions of science directly influence their interest in research and the construction of their identity as scientists. In this regard, factors such as curiosity and openness to new ideas are fundamental to fostering these skills (Sheldrake et al., 2024). However, assessing research competencies in the university context continues to be a challenge, as, although measurement tools exist, limitations related to their representativeness and the predominance of traditional approaches persist (Vázquez-Rodríguez, 2024). Furthermore, these competencies drive an entrepreneurial orientation, highlighting the need to reduce the digital and gender gap in higher education to ensure equitable opportunities for all students (Barra et al., 2024).

In the case of health sciences students, it is observed that they possess adequate research competencies but face limitations in scientific dissemination, significantly influenced by the institution they belong to (Reyes & Oyola, 2024). Similarly, digital competencies and research attitudes are closely related, although other factors such as received training and personal motivation also play a role in their development (Monroy & Chuye, 2024).

In the field of accounting, the development of research competencies is key to preventing fraud, improving internal controls, and strengthening corporate governance (Afriyie et al., 2022). On the other hand, in the judicial

context, the lack of investigative skills can affect the coherence of testimonies, making it crucial to structure well-founded narratives that ensure fair decisions (Kondowe & Svongoro, 2025).

Educational institutions play a fundamental role in promoting these competencies, as fostering a solid academic environment generates trust among parents and ensures the commitment of all educational stakeholders, which improves learning and strengthens equity, trust, and motivation in the school context (Ofem et al., 2024). Additionally, customizing therapeutic strategies and designing evidence-based digital interventions in collaboration with end users contributes to enhancing their effectiveness, optimizing tools for diverse populations (Jackson et al., 2024).

### **Strategies for developing research competencies**

To strengthen research competencies, it is essential to implement didactic strategies that promote critical thinking and active participation. Although practices such as guided reading and experiments support learning, their effectiveness depends on a student-centered methodology (Iddy et al., 2024). Furthermore, integrating direct experiences with the environment, such as observing living organisms, enhances scientific thinking from an early age, improving long-term analytical capacity (Ayotte-Beaudet et al., 2024).

In the educational sphere, using global problems as a didactic strategy allows for the development of analytical and investigative skills, promoting a research-based curriculum. This approach not only strengthens technical and sustainability competencies but also responds to labor market demands by integrating essential interdisciplinary knowledge for professional training (Gordon & Dixon, 2021). Likewise, literacy teaching must adapt to students' realities, incorporating topics related to identity, social justice, and empathy, thereby fostering critical thinking and research on social issues to promote a more informed and engaged citizenship (Skerrett & Smagorinsky, 2022).

Innovative methodologies such as Photovoice have proven effective in developing investigative and critical thinking skills in post-pandemic education. Through visual storytelling and image analysis, students identify social issues and communicate their findings in a meaningful way, strengthening their ability to interpret and intervene in community realities (Reed et al., 2024). Similarly, integrating laboratory exercises in interdisciplinary projects allows students to enhance their investigative and analytical skills, promoting collaboration and informed decision-making in fields such as chemical engineering and analytical chemistry (De Reviere et al., 2024).

To consolidate these competencies, it is crucial to optimize training strategies through more efficient access to information and comprehensive development of research skills (Ipanaqué-Zapata et al., 2023). It is recommended to reinforce the methodological training of new researchers and provide greater support to female researchers, thus promoting equity in scientific production (López-López et al., 2024). The implementation of specific workshops has demonstrated a positive impact on the development of research competencies in Industrial Engineering students, validating the effectiveness of structured strategies for this purpose (Guerra & Peraza, 2024).

In this regard, it has been proposed to restructure research content in the training of Chemistry Education graduates by incorporating reflective approaches and active methodologies to strengthen their research competencies (Roque et al., 2023). Furthermore, the design of a system of teaching tasks has proven to be an effective strategy for developing skills in formulating community projects among Physical Education students, highlighting the need to continue exploring other professional competencies that are still under-researched (Carmenate et al., 2023).

### **Conclusion**

For the effective development of research competencies, it is fundamental to promote curiosity and openness to new ideas, which are key aspects for fostering this skill. In this process, educational institutions play an essential role, as generating a solid academic environment and ensuring the commitment of all educational actors contribute to improving learning and strengthening equity, trust, and motivation within the academic sphere.

Moreover, strategies to enhance students' research competencies should include didactic methods that stimulate critical thinking and active participation. Integrating direct experiences with the environment, such as observing living organisms, enhances scientific thinking from an early age and improves long-term analytical capacity. This approach not only strengthens technical and sustainability competencies but also responds to labor market demands by combining essential interdisciplinary knowledge for professional training.

Finally, it is necessary for literacy learning to adapt to students' realities, incorporating topics related to identity, social justice, and empathy. To achieve this, it is important to implement reflective approaches and active methodologies that contribute to strengthening research competencies in a comprehensive manner.

## References

- Afriyie, S. O., Akomeah, M. O., Amoakohene, G., Ampimah, B. C., Ocloo, C. E., & Kyei, M. O. (2022). Forensic accounting: A novel paradigm and relevant knowledge in fraud detection and prevention. *International Journal of Public Administration*, 46(9), 615–624. <https://doi.org/10.1080/01900692.2021.2009855>
- Alvarez-Ochoa, R., Cabrera-Berrezueta, L., & Mena-Clerque, S. (2022). Competencias investigativas en estudiantes de educación superior: Aproximaciones desde estudiantes de medicina. *593 Digital Publisher CEIT*, 7(4-2), 312–327. <https://doi.org/10.33386/593dp.2022.4-2.1425>
- Angeloska-Galevska, N. (2023). Developing research and academic competencies of students through three cycles of studies. *The Eurasia Proceedings of Educational & Social Sciences (EPESS)*, 33, 63–69. <https://epess.net/index.php/epess/article/view/773/773>
- Ayotte-Beaudet, J. P., Hasni, A., Vinuesa, V., Rodrigue-Poulin, É., Quintela Do Carmo, G., Beaudry, M. C., & Paquette, A. (2024). Impact of outdoor place-based learning on elementary school students' ability to make unsolicited observations about living organisms over time. *Journal of Biological Education*, 1–19. <https://doi.org/10.1080/00219266.2024.2332741>
- Barra, C., Grimaldi, M., Muazzam, A., Troisi, O., & Visvizi, A. (2024). Digital divide, gender gap, and entrepreneurial orientation: How to foster technology adoption among Pakistani higher education students? *Socio-Economic Planning Sciences*, 93, 101904. <https://doi.org/10.1016/j.seps.2024.101904>
- Carmenate, Y., Curbeira, D., Naranjo, A., & Toledo, M. (2023). Sistema de tareas docentes para la formación de la habilidad profesional específica diseñar proyectos comunitarios. *Ciencia y Deporte*, 8(3), 395–410. <https://dx.doi.org/10.34982/2223.1773.2023.v8.no3.007>
- De Reviere, A., Jacobs, B., Stals, I., & De Clercq, J. (2024). Cross-curricular project-based laboratory learning enables hands-on interdisciplinary education for chemical engineering students. *Education for Chemical Engineers*, 47, 1–9. <https://doi.org/10.1016/j.ece.2024.01.001>
- Deroncele, A., Nagamine, M., & Medina, D. (2020). Bases epistemológicas y metodológicas para el abordaje del pensamiento crítico en la educación peruana. *Revista Inclusiones*, 68–87. <https://revistainclusiones.org/index.php/inclu/article/view/302>
- Ennis, R. H. (2011). Critical thinking: Reflection and perspective - Part I. *SPRING*, 26(1). [https://www.pdcnet.org/collection/fshow?id=inquiryct\\_2011\\_0026\\_0001\\_0004\\_0018&pdfname=inquiryct\\_2011\\_0026\\_0001\\_0004\\_0018.pdf&file\\_type=pdf](https://www.pdcnet.org/collection/fshow?id=inquiryct_2011_0026_0001_0004_0018&pdfname=inquiryct_2011_0026_0001_0004_0018.pdf&file_type=pdf)
- Espinola, J., & Santos, E. (2022). Importancia del pensamiento crítico en la labor docente. *Ciencia Latina Revista Científica Multidisciplinar*, 6(3), 2877–2894. [https://doi.org/10.37811/cl\\_rcm.v6i3.2425](https://doi.org/10.37811/cl_rcm.v6i3.2425)
- Gordon, N., & Dixon, J. (2021). The United Nations Sustainable Development Goals: A setting for professional and research skills. *New Directions in the Teaching of Physical Sciences*, 16(1), 1–12. <https://doi.org/10.29311/ndtps.v0i16.3660>
- Guerra, M., & Peraza, J. (2024). Estrategia para el desarrollo de la competencia investigativa en estudiantes universitarios de la carrera de Ingeniería Industrial: Estudio de caso de la Universidad Instituto Irapuato. *Ingeniería Industrial*, 47, 145–158. <https://doi.org/10.26439/ing.ind2024.n47.7223>
- Iddy, H., Fussy, D. S., Mkimbili, S. T., & Amani, J. (2024). Supporting the development of students' scientific literacy. *Journal of Science Teacher Education*, 35(4), 405–422. <https://doi.org/10.1080/1046560X.2023.2287790>
- Ipanaqué-Zapata, M., Figueroa-Quiñones, J., Bazalar-Palacios, J., Arhuis-Inca, W., Quiñones-Negrete, M., & Villarreal-Zegarra, D. (2023). Research skills for university students' thesis in E-learning: Scale development and validation in Peru. *Heliyon*, 9(3), e13770. <https://doi.org/10.1016/j.heliyon.2023.e13770>
- Jackson, H. M., Batterham, P. J., Cleave, A. L., Ohan, J. L., & Farrer, L. M. (2024). Skill enactment among university students using a brief video-based mental health intervention: Mixed methods study within a randomized controlled trial. *JMIR Mental Health*, 10, e53794. <https://doi.org/10.2196/53794>
- Juárez Popoca, D., & Torres Gastelú, C. A. (2022). La competencia investigativa básica: Una estrategia didáctica para la era digital. *Sinéctica*, 58, e1302. [https://doi.org/10.31391/s2007-7033\(2022\)0058-003](https://doi.org/10.31391/s2007-7033(2022)0058-003)
- Kondowe, W., & Svongoro, P. (2025). Unintentional insincerity in witnesses' discourse strategies in the Malawian criminal justice system. *Southern African Linguistics and Applied Language Studies*, 1–14. <https://doi.org/10.2989/16073614.2024.2439309>
- López Mendoza, M., Moreno Moreno, E., Uyaguari Flores, J., & Barrera Mendoza, M. (2022). El desarrollo del pensamiento crítico en el aula: Testimonios de docentes ecuatorianos de excelencia. *Areté, Revista Digital del Doctorado en Educación*, 8(15), 161–180. <https://doi.org/10.55560/arete.2022.15.8.8>

- López-López, E., Tobón, S., & Chávez-Herting, D. (2024). Percepción sobre las competencias para escribir artículos científicos en investigadores de ciencias sociales y humanas. *ALTERIDAD. Revista de Educación*, 19(2), 184–196. <https://doi.org/10.17163/alt.v19n2.2024.03>
- Monroy Correa, G., & Chuye Coronado, Y. (2024). Competencias digitales y actitudes investigativas en futuros docentes de educación primaria. *Mendive. Revista de Educación*, 22(2). [http://scielo.sld.cu/scielo.php?script=sci\\_arttext&pid=S1815-76962024000200009&lng=es&tlng=es](http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1815-76962024000200009&lng=es&tlng=es)
- Ofem, U., Idika, D., Otu, B., Ovat, S., Arikpo, M., Anakwue, A., Atah, C., Anake, P., Ayin, N., Edam-Agbor, I., Orim, F., Ngozi, A., Anyiopi, R., Nwinyinya, E., & Ibok, E. (2024). Academic optimism, capital indicators as predictors of cognitive, affective, and psychomotor learning outcome among students in secondary school: Hierarchical regression approach (HRA). *Heliyon*, 10(9), e30773. <https://doi.org/10.1016/j.heliyon.2024.e30773>
- Reed, K. B., Matson, Z., Brown, J. D., & Brown, E. A. (2024). Fostering justice and student connectivity with their community in mind: Using photovoice as a tool. *Journal of Hospitality, Leisure, Sport & Tourism Education*, 34, 100484. <https://doi.org/10.1016/j.jhlste.2024.100484>
- Reyes Narváez, S. E., & Oyola Canto, M. S. (2024). Competencias de investigación en docentes de ciencias de la salud. *Comuni@cción*, 15(3), 236–247. <https://doi.org/10.33595/2226-1478.15.3.1162>
- Roque, F., López, F., Macías, B., & Moreira, A. (2023). La formación investigativa desde el perfeccionamiento de la metodología de la investigación educativa en la carrera Licenciatura en Educación Química. *Luz*, 22(4), 77-93. [http://scielo.sld.cu/scielo.php?script=sci\\_arttext&pid=S1814151X2023000400077&lng=es&tlng=es](http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1814151X2023000400077&lng=es&tlng=es)
- Sheldrake, R., Reiss, M. J., & Lodge, W. (2024). What do you think being a good scientist involves? School students' views about science, scientific research, and being scientists. *International Journal of Science Education*, 1–19. <https://doi.org/10.1080/09500693.2024.2385759>
- Skerrett, A. & Smagorinsky, P. (2022). Teaching literacy in troubled times: Identity, inquiry, and social action at the heart of instruction: Corwin.
- Vázquez-Rodríguez, O. (2024). Evaluación de la competencia investigativa en el campo educativo: Un análisis de los instrumentos de medición. *ALTERIDAD. Revista de Educación*, 19(2), 208–222. <https://doi.org/10.17163/alt.v19n2.2024.05>
- Yucra-Camposano, J. F. (2023). Fortalecimiento de competencias investigativas: Una revisión sistemática de estrategias utilizadas en la educación superior. *Revista Chakiñan de Ciencias Sociales y Humanidades*, 21, 210–228. <https://doi.org/10.37135/chk.002.21.14>

#### AUTHORSHIP CONTRIBUTION:

1. Conceptualization: Julia Salazar Peralta.
2. Data curation: Julia Salazar Peralta.
3. Formal analysis: Julia Salazar Peralta.
4. Funding acquisition: Julia Salazar Peralta.
5. Research: Julia Salazar Peralta.
6. Methodology: Julia Salazar Peralta.
7. Project management: Julia Salazar Peralta.
8. Resources: Juan Meléndez Cruz.
9. Software: Juan Meléndez Cruz.
10. Supervision: Juan Meléndez Cruz.
11. Validation: Juan Meléndez Cruz y Marino Cardenas Rivera.
12. Visualization: Marino Cardenas Rivera.
13. Writing – original draft: Marino Cardenas Rivera.
14. Writing – proofreading and editing: Marino Cardenas Rivera.