Information Research Communications, 2024; 1(3):185-195.
https://inforescom.org

Research Article

Teacher-Researcher: Uncertainties of Knowledge

Deivis Robinson Mosquera-Albornoz[1], Sebastián Nathanial Supple[2], Guillermo Rojas Quiceno[3,*], José Miguel López-Zuluaga[4]

[1]Universidad Católica de Oriente, COLOMBIA.
[2]Masuk High School, Monroe, Connecticut, UNITED STATES OF AMERICA.
[3]Core of Science, Risaralda, Director, COLOMBIA.
[4]Universidad Nacional de Colombia, COLOMBIA.

ABSTRACT

Introduction: This study examines the scientific production related to the role of the teacher-researcher over the past years. The objective is to analyze the evolution of publications in this field, identifying key trends and collaboration patterns among researchers. Understanding these aspects is essential to recognize the development of knowledge in this area and its impact on academic communities. **Methodology:** A bibliometric approach was used, selecting articles from indexed databases published over the last 24 years. A network analysis methodology was applied to identify the most influential works and the connections among researchers. The classification of references was conducted based on their contribution to the academic discussion, differentiating between foundational works and recent developments. Data visualization techniques were employed to illustrate the main research lines and collaborative networks. **Results:** The findings indicate a steady increase in the number of publications, with a significant rise in recent years. Recurring thematic patterns were identified, as well as a growing network of collaboration among researchers from different institutions. The classification of references highlights well-established research areas, while others present opportunities for further exploration. **Conclusion:** This study provides a comprehensive view of the evolution of research on the teacher-researcher role, emphasizing its relevance within the academic community. Encouraging interdisciplinary collaboration and open access initiatives could enhance the impact and development of research in this field.

Keywords: Teacher research, Hidden science and learning, Uncertainty in education, Research-teaching nexus, Scientometric mapping.

Correspondence:
Guillermo Rojas Quiceno
Core of Science, Risaralda, Director, COLOMBIA.
Email: guillermorojas@unicauca.edu.co

Received: 24-11-2024;
Revised: 09-02-2025;
Accepted: 16-04-2025.

INTRODUCTION

The study of knowledge, learning, happiness, and teaching raises fundamental questions within the academic field. Ghoreifi and Djaladat (2022) highlight that knowledge concealment is a recurring practice in higher education. In this context, it is pertinent to analyze various methodological approaches that enable the evaluation, planning, analysis, interpretation, and exploration of knowledge in its different manifestations. Freire (2002) introduces the concept of the emancipatory educator, while Zhang *et al*., (2022) emphasize that individual differences influence knowledge concealment. In this regard, the educator plays a central role in the process of unlearning and perceiving structured academic realities. However, this endeavor faces several limitations, including the dichotomy between education aimed at professional training and that focused on comprehensive education. Consequently, questions arise regarding the validity and applicability of the knowledge imparted. Quiceno (2018) argues that academic thought has been shaped by structured cognitive development, resulting in a mechanical learning process. Zhao and Luo (2024) examine the effects of knowledge concealment on student creativity and performance.

From this perspective, the relationship between knowledge and hope is in a state of constant tension. Freire (2010) defines hopelessness as a mechanism of silencing and denial of reality, which affects the transmission of knowledge. Finkielkraut (1987) warns against the disregard for universality in intellectual activity and the glorification of particularisms. In this regard, the teaching profession must remain focused on knowledge construction and student development. Xing (2022) indicates that the absence of shared ethical priorities generates conflicts in education, reinforcing the need for a more structured approach to knowledge transmission.

The analysis of the educator's capacity for learning and their ontological position in the object-subject relationship is crucial. Hessen (2007) addresses this issue from an epistemological

DOI: 10.5530/irc.1.3.22

Publishing Partner : ScienScript Digital. [www.scienscript.com.sg]

perspective. Additionally, the educator as a researcher, acting as a knowledge generator, faces challenges in terms of objectivity in their investigations. Maturana (1997) describes the educator as a generator of reality through their operations in the praxis of living, raising questions about the nature of hidden knowledge within learning. Liu *et al.*, (2020) warn that the lack of a conducive environment for knowledge exchange can lead to interpersonal distrust within the academic community.

This study examines the support that artificial intelligence can provide in guiding the scientific community, with a specific focus on the role of the educator as a researcher. The methodology is based on a literature review of indexed databases such as Scopus and Web of Science (WoS), whose results have been analyzed using the algorithm implemented by Core of Science, allowing for a tree-structured organization (Zuluaga *et al.*, 2022). This approach facilitates coherent information management and enhances traceability in research. Additionally, contributions from classical authors have been considered, whose work has significantly impacted the understanding of education and knowledge.

The analysis of recent academic contributions enables a deeper understanding of the challenges faced by educators and learners in their formative process. Marina (2010) states that Franz Kafka perceived himself as a failure, not due to his literary performance but because of the difficulty of living, raising questions about the purpose of education: Should it be directed towards life preparation or scientific training? Various limitations exist in knowledge access and transmission, generating uncertainty within educational processes. Joly (1979) warns about the alteration of a nation's character and its impact on social structure. Nevertheless, contemporary education is in constant transformation, with researchers continuously contributing to the development of both educators and students. This study aims to synthesize academic contributions from the last two decades regarding knowledge generation, learning, research, and educational training.

Based on these elements, a theoretical framework is proposed, grounded in a qualitative methodology supported by a scientometric analysis of authors and countries. The organization of knowledge follows a tree structure, where classical authors from the roots, contemporary researchers constitute the trunk, and recent scientific advancements shape the branches. Thus, the concept of the Tree of Science (ToS), proposed by Valencia-Hernández et al. (2020), is adopted, providing an analytical structure that allows for an understanding of the evolution of academic knowledge.

METHODOLOGY

This study employs a qualitative methodology with an applied purpose, aimed at interpreting the factors that affect educational quality. The research is based on a scientometric approach, allowing for a detailed analysis of the evolution of academic discourse on teacher-researchers. Using bibliometric tools, we identify patterns, trends, and key contributions in this field.

Data collection was conducted using the WoS and Scopus databases. The search strategy included the phrase "research teach" in titles, abstracts, and keywords, yielding 267 records in WoS and 439 in Scopus. Although Scopus produced a larger volume of results, WoS contained 166 additional documents (30.64%) not present in Scopus, highlighting the importance of combining both sources. To consolidate and analyze these data, the Bibliometrics and ToS packages were used (Botero *et al.*, 2023). See Table 1 for a summary of the main parameters used in data selection and analysis.

Subsequently, text mining and web scraping techniques were applied to extract relevant metadata. This process allowed us to structure a dataset with 568 documents, enabling a detailed analysis of the academic landscape regarding teacher-researchers.

Scientometric Mapping

Scientometric analysis enables the mapping of scientific production and its trajectories within the field of education. This approach facilitates the identification of emerging trends and thematic developments in educational research (Aguirre & Paredes Cuervo, 2023; Robledo *et al.*, 2023a).

The analysis is divided into four key areas

Scientometric Production – Evaluation of the volume and evolution of academic publications.

Country-Specific Contributions – Identification of the leading regions producing knowledge in education.

Journal Analysis – Review of publication venues and their impact within the field.

Author Collaboration Analysis – Study of co-authorship networks and academic partnerships.

This process follows a structured approach, beginning with a general analysis of annual scientific production and progressing toward a detailed examination of author collaboration networks. Through this analysis, we gain insights into research dynamics and knowledge dissemination in the field (Robledo *et al.*, 2023b).

Tree of Science Analysis

To complement the scientometric analysis, the ToS algorithm was applied, which organizes scientific production into a hierarchical structure resembling a tree. This model distinguishes three levels within academic knowledge (Robledo *et al.*, 2022):

Roots – Fundamental articles that establish the theoretical foundations of the field.

Trunk – Studies linking foundational concepts with recent research.

Branches– Emerging contributions that expand existing knowledge and open new lines of inquiry.

The ToS methodology has been applied across multiple disciplines, including mathematics (Zuluaga *et al.*, 2022), management (Erazo-Muñoz *et al.*, 2022), and natural sciences (Durán-Aranguren *et al.*, 2021), demonstrating its effectiveness in knowledge classification and analysis. Eggers *et al.*, (2022) provide a detailed description of the initial diffusion process of this methodology.

Table 1: Parameters used in teacher-researcher.

Parameters	WoS	Scopus
Range	2000-2023	
Date	July 9, 2024	
Document types	Papers, books, chapters, and conference proceedings.	
Search field	Title, abstract, and keywords	
Words	"Research teach"	
Results	267	439
Total unique:(WoS+Scopus)	540	

Source: Self.

In the context of this study, the ToS was used to examine the fragmentation of knowledge in education (Geboers *et al.*, 2015). According to these authors, teacher training must consider four key aspects: social interest, prosocial ability, reflective thinking, and assertiveness. However, beyond these factors, the structural analysis of ToS enables the identification of the most influential works and their relationship to the development of knowledge in the educational field.

Thus, the combination of scientometric mapping and ToS analysis provides a comprehensive view of the state of the art on teacher-researchers, establishing a solid foundation for future research and developments in education.

RESULTS

The findings of this research indicate a lack of information regarding hidden knowledge, suggesting that academic and scientific training does not always provide comprehensive access to information. Instead, knowledge is presented in a fragmented manner within the academic community.

Furthermore, various studies have identified the use of symbolism, anagrams, and puzzles in scientific production, which can lead to subjective and biased interpretations (Geboers *et al.*, 2015). This complexity may hinder the interpretation of findings and the identification of the researcher's intent. To address this issue, a scientometric analysis was conducted to examine the relationship between teacher-researchers and knowledge generation. Below, the scientometric mapping analysis is presented.

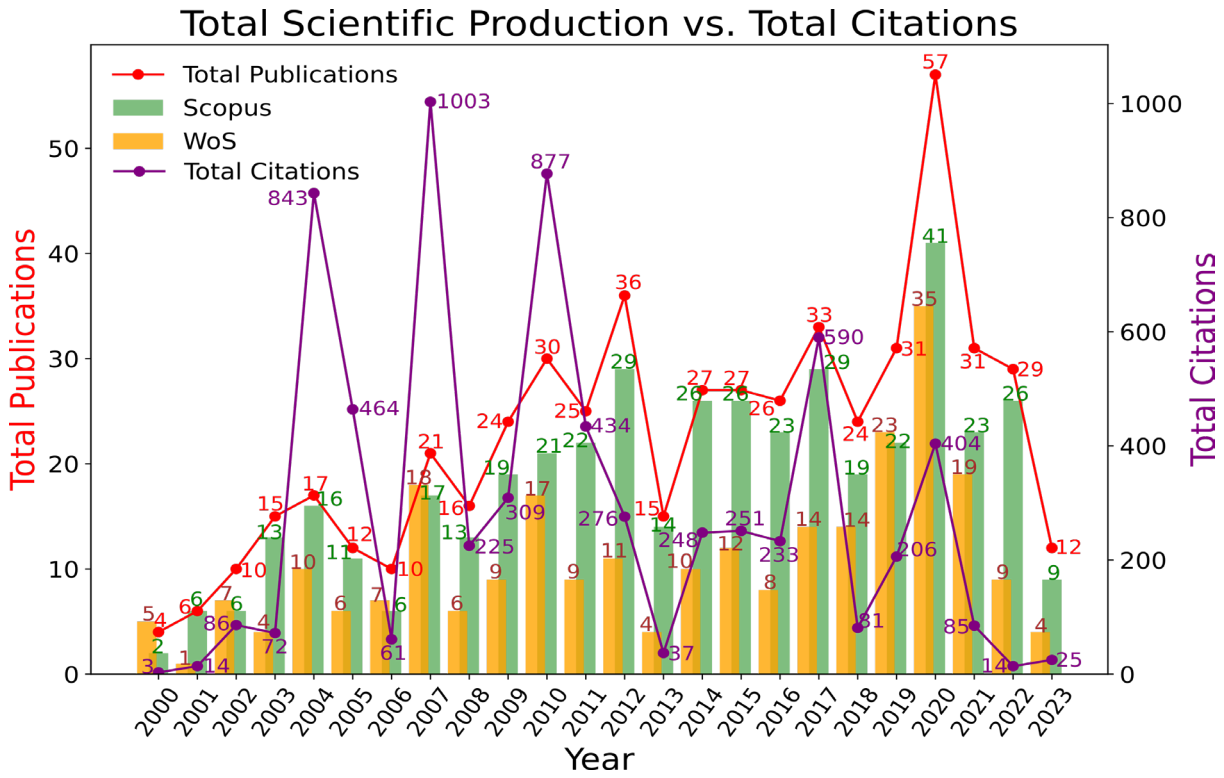

Figure 1: Total production annual vs. total citations. Source: Construction of the authors based on RStudio, Gephi y EDA.

Scientific Annual Production

Figure 1 provides an overview of the article production related to the role of the teacher-researcher over the past 24 years. A progressive increase in research is observed in the Scopus database, consistently surpassing the number of publications in WoS.

The literature production can be classified into three significant stages or milestones. The initial growth phase, spanning from 2000 to 2012, is marked by the influential article by Griffiths (2004), which has had a substantial impact on the academic community, receiving 325 citations. Another notable contribution comes from Loughran (2007), with 205 citations. Additionally, Newell *et al*., (2011) emphasize the importance of argumentative reading and writing in learning and teaching, accumulating 180 citations.

The thematic growth and consolidation phase (2013-2019) highlights the work of Tight (2016), who examines the interconnection between teaching and research. However, the most cited article during this phase is by Cadez *et al*., (2017), which evaluates academia and the quality of knowledge management, with a total of 123 citations. Key stakeholders have been extensively studied in the literature, with notable contributions from Mitchell and Freeman. Nevertheless, Spanierman & Smith (2017) provide a practical approach to understanding roles and responsibilities. Exploring the realm of digital knowledge transmission and online courses, McDaniels *et al*., (2016) introduce their work on creating communities centered on dynamic learning.

Country Analysis

In the United States, 151 publications in high-impact scientific journals have been recorded by 1,445 researchers. Of these publications, 31% (48) were published in Q1 quartile journals, 13% (20) in the Q2 quartile, 6.6% (10) in the Q3 quartile, and 6.6% (10) in the Q4 quartile. The most cited article, with 180 citations, focuses on demonstrating the importance of inquiry-based techniques in the process of teaching university-level research (Griffiths, 2004).

Regarding the United Kingdom, with 71 publications, it ranks second behind the United States. Among these publications, 33% (24) are in the Q1 quartile, and their citations reach 22.84%. The most cited article, with 325 citations, studies the nature and significance of research, highlighting key factors in knowledge production modes (Griffiths, 2004).

On the other hand, Australia accounts for 6.04% of the publications, with a notable 46% in the Q1 quartile. It ranks third with a total of 385 citations. The most cited article in Australia explores the need for documenting learning through self-directed learning (Loughran, 2007).

In fourth place, both Canada and South Africa have 21 publications. However, South Africa stands out with 7.01% of citations, in contrast to Canada's 1.33%. Regarding journal distribution, Canada reaches 38% in Q1, while South Africa barely reaches 9.5%. The most cited article in Canada, with 30 citations, highlights the advantages of translingual pedagogy in English for academic purposes. On the other hand, in South Africa, the most cited article, with 42 citations, focuses on studying conceptual

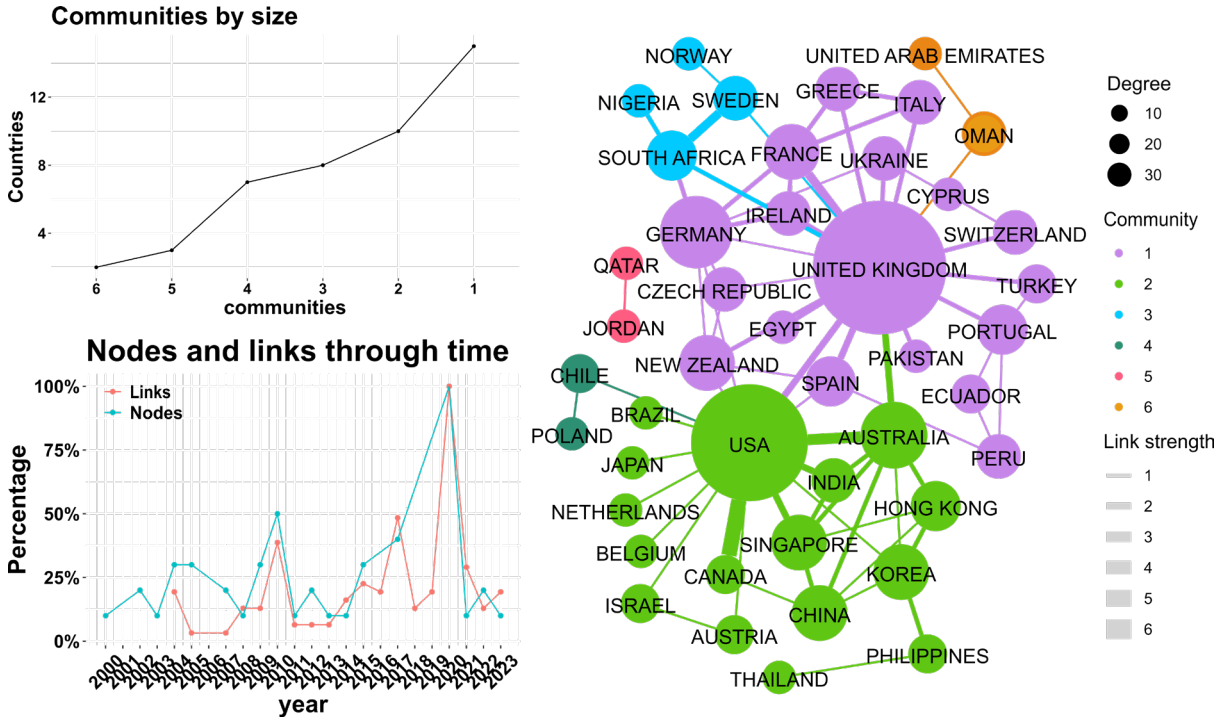

Figure 2: Collaboration network among countries. Source: Construction of the authors based on RStudio, Gephi y EDA.

Table 2: Top 10 most productive countries.

Country	Production		Citation		Q1	Q2	Q3	Q4
USA	151	30.4%	1445	32.5%	48	20	10	10
United Kingdom	71	14.3%	1016	22.8%	24	9	5	3
Australia	30	6.04%	385	8.66%	14	3	3	1
Canada	21	4.23%	59	1.33%	8	3	1	1
South Africa	21	4.23%	312	7.01%	2	3	3	8
China	20	4.02%	52	1.17%	2	2	3	1
Germany	20	4.02%	108	2.43%	0	2	4	6
Spain	16	3.22%	75	1.69%	4	3	2	0
Brazil	13	2.62%	17	0.38%	0	5	2	0
New Zealand	11	2.21%	179	4.02%	3	2	0	1

Source: Construction of the authors based on Scopus y EDA.

understanding and analyzing the nature of expert knowledge (Anderson & Schönborn, 2008).

Finally, noteworthy publications from countries such as China, Germany, and Spain can be highlighted, with 20, 20, and 16 publications respectively. Among this group, Spain stands out with 25% of these publications in the Q1 quartile, while Germany does not have any in this quartile. Notably, the article with the highest number of citations in China investigates teaching and learning in relation to ethics (Albury *et al.*, 2011).

Table 2 summarizes the information on the 10 most productive countries in this field, consolidating key analyzed data. Additionally, Figure 2 illustrates the collaboration network between countries, complementing the previous analysis. It is observed that the countries with the highest collaborations are primarily the United Kingdom and the United States, with diverse collaboration networks across different areas and small research communities. A total of six interconnected research communities were identified, reflecting the diversity in research approaches within the teacher-researcher field.

Journal Analysis

The analysis of journals facilitates the recognition of the most prolific publications and their correlation with a specific research topic. This section is bifurcated into two parts: the first part scrutinizes the top 10 most productive journals, while the second part investigates the clustering of journals around a particular topic. As depicted in Table 3, six out of the top 10 journals are ranked in the first quartile (Q1). Intriguingly, the journal with the highest productivity does not necessarily correlate with the highest quality, and it primarily focuses on biochemistry education. This anomaly can be attributed to the fact that this journal published a series of papers in 2010 that explored the intersection of research and teaching (Anderson & Rogan, 2010; Parra *et al.*, 2010; Schönborn & Anderson, 2010).

The *Journal of Higher Education*, boasting the second-highest *h*-index, has published papers exploring the role of the teacher and the relational nature of research (Kaasila *et al.*, 2021; Mathieson, 2019). Another journal, the *International Journal of Radiation Oncology Biology Physics*, which specializes in health, has also published papers on the research-teacher paradigm, specifically within the context of oncology (Wallner *et al.*, 2014). In essence, the table underscores the broad and dynamic range of research pertaining to the research-teacher topic.

Figure 3 presents a citation network of journals, delineating three principal thematic clusters. The first cluster (depicted in orange) encompasses journals that focus on education within specific disciplines, such as mathematics or biology. The second cluster (illustrated in green) comprises medical journals, reflecting the academic literature's emphasis on the research-teaching paradigm from a caregiving perspective (Merrilees, 2016). The third cluster (represented in purple) pertains more to the field of education sciences, signifying studies that explore the intersection of research and teaching (Reid & Gardner, 2020).

Author Collaboration Network

This section presents the most significant researchers according to their academic production on the topic of research-teacher, along with the scientific collaboration network of each individual's personal networks (ego-network). Table 4 displays significant productivity from authors affiliated with the United States, including Professor Trevor Anders, who is widely recognized for his proposed models to bridge the gap between research and teaching (Schönborn & Anderson, 2010).

Figure 4 presents the scientific collaboration network of authors with the most research. It is observed that there is a community around Professors Anscher and Barker, possibly due to their thematic affinity around health topics (Wallner *et al.*, 2014), which also causes it to be a community that clearly differentiates itself from others. Additionally, only Professors Gauthier and Griffin appear with scientific collaborations due to their thematic affinity

Table 3: Top 10 most productive journals.

Journal	WoS	Scopus	Impact Factor	H index	Quantile
Biochemistry And Molecular Biology Education	9	9	0.4	43	Q3
Abstracts of Papers of the American Chemical Society	7	0	-	-	-
Higher Education	7	7	1.95	118	Q1
Studies In Higher Education	6	6	1.72	120	Q1
Childhood Education	0	6	0.15	27	Q4
Asia-Pacific Journal of Teacher Education	4	4	0.8	43	Q1
International Journal of Radiation Oncology Biology Physics	3	3	2.09	268	Q1
Teaching In Higher Education	3	0	0.94	69	Q1
Contemporary Physics	0	3	1.34	62	Q1
Educational Action Research	2	3	0.64	43	Q2

Source: Scimago Journal Ranking and EDA.

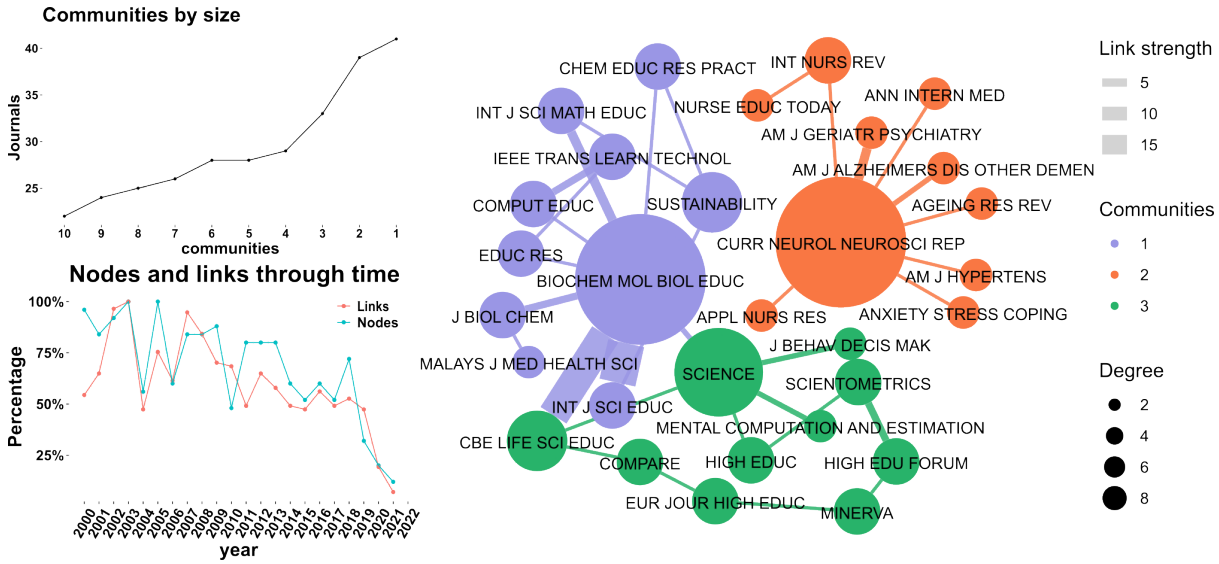

Figure 3: Journal citation network with three clusters. Source: Construction of the authors based on RStudio, Gephi y EDA.

to animal research (Griffin & Gauthier, 2004) and geographical proximity.

Tree of Science

Figure 5 provides a visual depiction of the ToS for the research-teacher domain. The ToS metaphor commences with seminal or classic studies, which lay the foundation for the field. This is followed by the trunk, comprising papers that structurally underpin the research topic. The leaves represent the most recent studies in the field. However, the primary focus of this paper lies in the branches rather than the leaves, signifying the evolution and diversification of the research-teacher domain over time.

Roots

The first article identified within the roots was Professor Neumann's work regarding academic perceptions of the relationship between research and teaching as components of their profession (Neumann, 1992). The findings revealed a strong belief in the symbiotic relationship between these two aspects. However, the second study posits that this relationship may not always be fruitful. Although both components contain the element of learning, they are applied differently depending on the context. For this reason, Professors Hattie and Marsh conducted a review of this relationship, concluding that there is no inherent connection between research and teaching (Hattie & Marsh, 1996). Nonetheless, Hattie and Marsh (1996) propose that these relationships can be either positive or negative. While the majority of researchers may perceive these relationships as positive, a

Table 4: Production by author.

No	Researcher	Total Articles*	Scopus Index	Affiliation
1	Anderson T	10	15	Purdue University, West Lafayette, United States
2	Souto-Manning M	4	22	Erikson Institute, Chicago, United States
4	Anscher M	3	67	University of Texas Md Anderson Cancer Center, Houston, United States
5	Barker C	3	35	Memorial Sloan-Kettering Cancer Center, New York, United States
6	Derr J	3	10	Virginia Polytechnic Institute and State University, Blacksburg, United States
7	Elen J	3	27	Centre For Instructional Psychology and Technology, Leuven, Belgium
8	Gauthier C	3	5	Canadian Council on Animal Care
9	Griffin G	3	12	Canadian Council on Animal Care
10	Mathieu R	3	48	University Of Wisconsin-Madison, Madison, United States

Source: Construction of the authors based on Scopus y EDA.

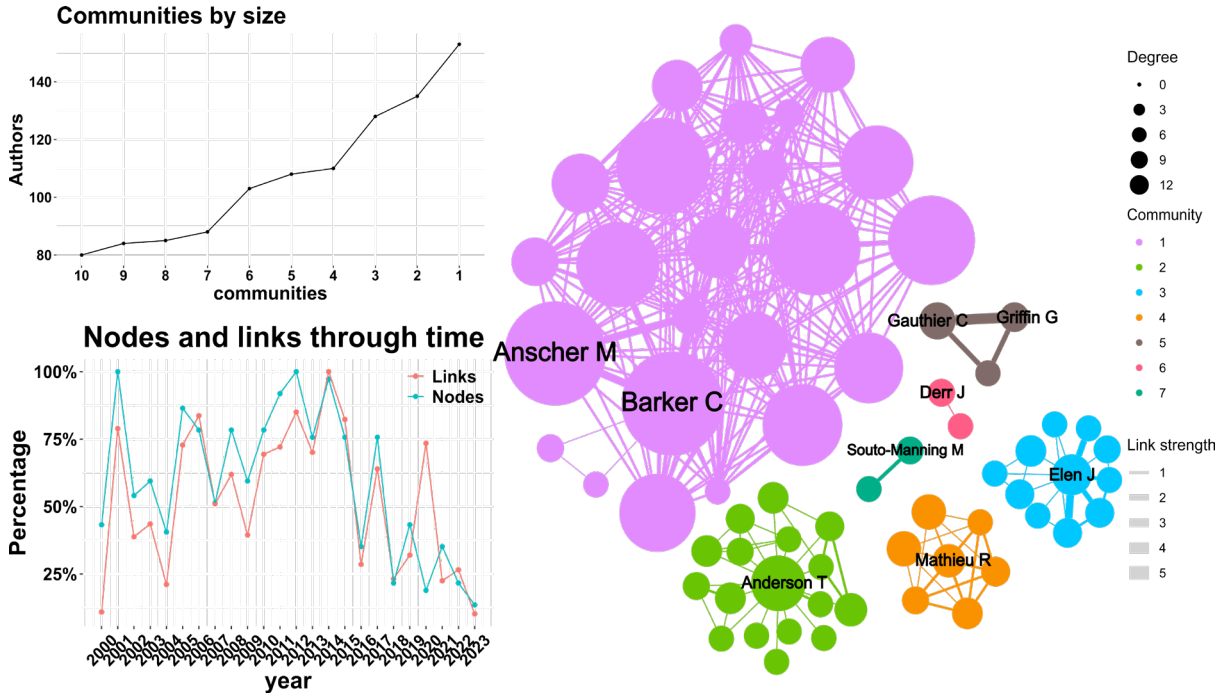

Figure 4: Collaboration network of the top 10 researchers. Source: Construction of the authors based on RStudio, Gephi y EDA.

wide array of factors can influence this relationship and create a divide. In this initial stage, proposals emerge that highlight both the positive and negative aspects of the research-teaching relationship, without reaching a consolidated understanding of the topic.

Trunk

When discussing the trunk in research, we are facing a structure that stems from the knowledge of a scientific community that explores the paths of the researcher and teaches daily. It is timely to mention in this case the study of Kaasila *et al.*, (2021), referring to the role of the researcher and teaching. It is an approach to the fragmented identities of the professional, which puts tensions of equivalence that hinders the role of the teacher. Hence the importance of the pedagogical processes of teaching, learning, and production of knowledge remains uncertain. For this, we have analyzed Griffiths (2004), resorting to the nexus between research and teaching and the disciplines of the environment. Despite investigating the forms of knowledge production, the

teacher returns to the crossroads of life, where he receives validated knowledge but in doubt of its truthfulness.

This is how another actor becomes part of knowledge, and it is the consciousness, experiences, and perceptions of the student and the teacher. For Healey *et al.*, (2010), the fact of having teachers recognized by the scientific community enthuses and redirects teaching. But we consider that it can be an inflexible point that prevents curiosity to investigate or teach in another sense, and we can come to take for granted what is imparted, without room for discussion. This is what we call directed research, and it is what we are exposed to in science, a reduction of the teacher's and learner's spectrum in relation to the consciousness of knowledge. This is when the doubt of performance evaluation in academia comes in, as noted by Cadez *et al.*, (2017). That is, the risks in creativity and innovation in teaching and learning, which is timely to mention, given the model to follow or implemented in school.

This process could be defined as alienating, both in the teacher and the learner. In the words of Freire, it is easy to dominate consciences. It arises like the bird of satisfaction, the educator of vocation, that creative one that in a significant way originates new didactic and pedagogical techniques. The one who has to compete even with Mephistopheles, a character in the book *Faust*, who satirically says:

"I will tell you, as for this other science, because I do not want to cause errors, that it is very difficult to escape false paths: that in it much poison is hidden and of the triaca it is barely distinguished" (Goethe, 1808/2012, p. 136,139).

The two actors are already in a paradigm and uncertainties, but it is not easy to remove that veil from the eyes, it is not easy to go to the awakening of consciousness to achieve emancipation. As described by Freire, this is achieved through techniques supported by advanced pedagogical theories and extensive research, seeking to remove a man from his ignorance, not through the direct action of a teacher, but from the very exercise of the faculties that he is interested in developing, such as awareness, self-reflection, and full freedom. It is worth clarifying that this freedom is nourished by free will, which in turn strengthens knowledge and exercises that force called will, that which few nourish.

Branch 1: Student Learning

The thematic characteristic of this subarea revolves around student learning when there is a relationship between teaching and research. For instance, Bouatouch *et al.*, (2022) elucidates the principal components of a class with a research-teaching focus through data visualization. Additionally, Howell (2021) conducted an experiment with medical students, identifying the primary positive and negative impacts of this type of teaching. Gros *et al.*, (2020) validate that when learning connects with research, it enables students to develop broader competencies. In this vein, Mathieson (2019) utilized a social approach to comprehend the integration of research and teaching. The authors conducted a qualitative study to understand how researchers construct narratives and integrate them into teaching.

Branch 2: Teaching process with research

It is imperative to discuss the ethics of the teacher and the learner in a knowledge community, where education takes on significant

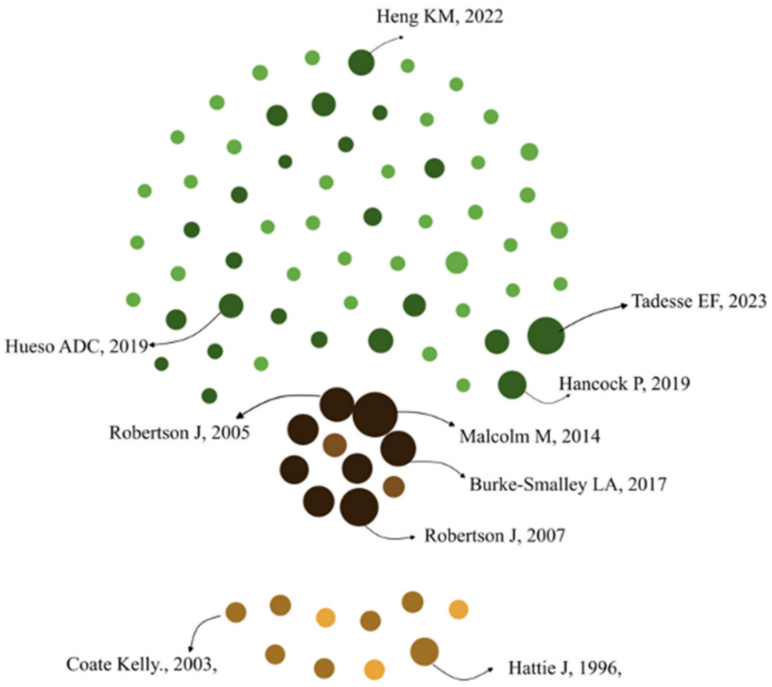

Figure 5: Autors in the Structure of the Tree of knowledge.

importance. In this context, Aristóteles (1984) alludes to the virtue of dignity. He majestically displays this dignity amidst self-sufficiency and servile courtesy, simultaneously highlighting the dignified individual. Meanwhile, Hulpke (2022) analyzes the ethical teacher and related research, teaching, and practical life, emphasizing the characteristics or qualities of the conscious teacher: to research, to teach, and to serve. However, we must not lose sight of what Nietzsche (2020) pointed out, how we have allowed our senses to freely rest on all that is superficial, and that our thinking has a divine longing to leap and to make false reasoning as a prank.

In the case of Clark & Hordosy (2019), they delve a bit further into the connection between teacher and learner and the findings in the context of a post-truth society. Thus, uncertainties increase in learning and knowledge, which is projected into life with obstacles. Particularly, Chen (2018) denotes the need for objectivity in business academia. They highlight the need to have a respected teacher and to train students in ethics, making teaching and research a balance in pedagogical conception. It is here where the concern for the truthfulness of what is researched plays with what is taught, and the ethics of the teacher is at stake, given the responsibility in the search for knowledge. In this sense, we find works that highlight the concern for the gaps between research and teaching, as shown by Burke-Smalley *et al.*, (2017), emphasizing the value of systematic scientific research for understanding.

We are going through a critical moment in research, and it is related to social influence, perhaps fragmented and distorted information at the service of an educational structure that, undoubtedly, the teacher and the learner ignore. It is complex to talk about evaluation in academia in fields of research and education, especially when knowledge or what is allowed to be known is generally imparted to a school population like a recipe. It is no longer about banking education but an education directed according to what is needed, which has mutilated the interest in research. Cadez *et al.*, (2017) consider that the academic load is one of those obstacles that reduce the researcher's time. They also describe the danger that this load represents in reducing creativity and innovation and how it separates quality in education from productivity in teaching.

We cannot assume that excellent researchers are good for teaching, according to Giangreco *et al.*, (2013). Teaching experience is very important considering the ability to inquire, ask, and reach a reliable source. Perhaps we are talking about the knowledge of knowledge and the self-management of growth described by Ho *et al.*, (2013). That filigree between intellectual capital is accompanied by research and teaching. We must appreciate that, apparently, intellectuality is given by knowledge and will as well, to reach free will, but what makes us think of the achievement of intellectuality? We give recognition to that emancipating teacher, to that restless learner, but we lack appreciation for the capacity of that being to reach a good living, a quality of life, and an awakening of consciousness. A great confusion exists between intellectuality, knowledge, and skill—the ability to remove the veil from the eyes and know reality.

For this reason, some authors speak of dialogue as a means of relating to knowledge, to reach a truthful investigation, not simply one accepted and supported in scientific communities. Griffiths (2004) argues that research and teaching should be seen with respect to the environment and the modes of knowledge production in practice-oriented fields. We need to ask ourselves about the type of knowledge and tools for investigating the learner and their qualities. In this sense, Lindsay *et al.*, (2002) analyze what postgraduate students ask themselves about the topic. They show how postgraduate students highlight the interest, relevance, and usefulness of that research teacher, who feeds their learning and generates teaching models.

Branch 3: Bridging the Gap between Practice and Knowledge

The inaugural article of this branch illustrates how theory and analytical approaches have engendered an interactive digital narrative, proposing a model for researchers to engage students through diverse narratives, as discussed by Koenitz & Eladhari (2022). Additionally, Caron *et al.*, (2020) proposed a social engagement approach, which was substantiated by Lambert & Penney (2020), demonstrating that educators interpret and enhance classes through adaptive and pluralistic development when linked to political aspects.

Another intriguing aspect of the gap between teaching and research is the implications and responsibilities towards minorities, as analyzed by Lewis *et al.*, (2018), who critique the lack of integration in the classroom. Finally, Torino *et al.*, (2019) consolidates in his chapter the needs and advantages of a research-focused education.

CONCLUSION

The academic programs offered in institutions are shaped by public policies, Many times as democratization of access to education and the right to knowledge. The information has been hidden and for this purpose technology has been implemented over the centuries. The school has maintained curricular programs modeled and projected to societies. Hence, the importance of the role of the teacher-research developing a teacher´s research capacity, the essential role of teacher education.

In conclusion, this study sheds light on the critical role of teacher-researchers in navigating the uncertainties and complexities of knowledge and learning. This is the case of reflections on a field of questioned conceptions. As education continues to evolve, it is essential for educators to approach their work with objectivity, “critical thinking” (not possible),

and a willingness to adapt to new ideas and approaches. The ToS platform provides a valuable tool for analyzing outstanding publications in Scopus and Web of Science, enabling researchers to stay up-to-date on the latest developments in their field.

Ultimately, the success of education depends on the harmonious relationships between teachers, researchers, and students, as they work together to find pertinent solutions to the problems of current education and life. By embracing uncertainty and seeking out new knowledge, teacher-researchers can help shape the future of education for generations to come.

This is why, in the midst of beliefs and attitudes, it is necessary to develop a technical framework for perceiving and understanding the investigated world, supported by didactics. In the face of crossroads and uncertainties, the teacher should firmly embrace sensitivity, emotion, understanding, and knowledge, but above all, they should know how to explore hidden knowledge to help the learner comprehend a world of joy rather than uncertainties. Likewise, it is necessary to reject flattery from the ignorant. They argue that praise binds and controls the students instead of liberating them, and value the advice of the wise. It is striking how much trust is placed in those who impart knowledge, and this is frightening because they are given the title of integrity, which is validated by the learner, someone who does not strive to seek scientific reason to achieve certainty but rather engages in the game of flattery.

Finally, it is necessary to understand that, if knowledge is hidden in symbols, anagrams, enigmas and training is directed by suggestion, hermeticism, rhetoric and vanity, we will continue to think as others think and we will continue repeating what others say, whether true or false. This is why science validates what it wants to validate.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest.

ABBREVIATIONS

WoS: Web of Science; **EDA:** Exploratory Data Analysis; **ToS:** Tree of Science.

SUMMARY

This study investigates the uncertainties surrounding knowledge and learning, particularly focusing on the role of teacher-researchers. It employs a scientometric analysis of publications from Scopus and Web of Science to map trends, country-specific contributions, journal analysis, and author collaborations. The Tree of Science methodology is used to structure significant research papers hierarchically. The results highlight a lack of comprehensive information regarding hidden knowledge and the challenges teacher-researchers face in interpreting knowledge and adapting to changes in education. The study concludes that teacher-researchers play a crucial role in research training by unveiling hidden knowledge and fostering critical thinking.

REFERENCES

Aguirre, K. A., & Paredes Cuervo, D. (2023). Water safety and water governance: A scientometric review. Sustainability, 15(9), 7164. https://doi.org/10.3390/su15097164

Albury, K., Carmody, M., Evers, C., & Lumby, C. (2011). Playing by the rules: Researching, teaching and learning sexual ethics with young men in the Australian National Rugby League. Sex Education, 11(3), 339–351. https://doi.org/10.1080/14681811.2011.590332

Anderson, T. R., & Rogan, J. M. (2010). Bridging the educational research-teaching practice gap: Tools for evaluating the quality of assessment instruments. Biochemistry and Molecular Biology Education, 38(1), 51–57. https://doi.org/10.1002/bmb.20362

Anderson, T. R., & Schönborn, K. J. (2008). Bridging the educational research-teaching practice gap: Conceptual understanding, part 1: The multifaceted nature of expert knowledge. Biochemistry and Molecular Biology Education, 36(4), 309–315. https://doi.org/10.1002/bmb.20209

Aristóteles. (1984). Gran ética. Madrid Sarpe.

Botero, C. M., Milanes, C. B., & Robledo, S. (2023). 50 years of the Coastal Zone Management Act: The bibliometric influence of the first coastal management law on the world. Marine Policy, 150, Article 105548. https://doi.org/10.1016/j.marpol.2023.105548

Bouatouch, K., de Sousa, A. A., Chessa, M., Paljic, A., Kerren, A., Hurter, C., Farinella, G. M., Radeva, P., & Braz, J. (Eds.).(2022). Computer vision, imaging and computer graphics theory and applications: 15th international joint conference, visigrapp 2020, Valletta, Malta, February 27–29, 2020. revised selected papers. Springer.

Burke-Smalley, L. A., Rau, B. L., Neely, A. R., & Evans, W. R. (2017). Factors perpetuating the research-teaching gap in management: A review and propositions. The International Journal of Management Education, 15(3), 501–512. https://doi.org/10.1016/j.ijme.2017.08.004

Cadez, S., Dimovski, V., & Zaman Groff, M. (2017). Research, teaching and performance evaluation in academia: The salience of quality. Studies in Higher Education, 42(8), 1455–1473. https://doi.org/10.1080/03075079.2015.1104659

Caron, R., Lee, E. O. J., & Pullen Sansfaçon, A. (2020). Transformative disruptions and collective knowledge building: Social work professors building anti-oppressive ethical frameworks for research, teaching, practice and activism. Ethics and Social Welfare, 14(3), 298–314. https://doi.org/10.1080/17496535.2020.1749690

Chen, M.-J. (2018). The research-teaching "oneness" of competitive dynamics: Toward an ambicultural integration. Asia Pacific Journal of Management, 35(2), 285–311. https://doi.org/10.1007/s10490-018-9583-y

Clark, T., & Hordosy, R. (2019). Undergraduate experiences of the research/teaching nexus across the whole student lifecycle. Teaching in Higher Education, 24(3), 412–427. https://doi.org/10.1080/13562517.2018.1544123

Durán-Aranguren, D. D., Robledo, S., Gomez-Restrepo, E., Arboleda Valencia, J. W., & Tarazona, N. A. (2021). Scientometric overview of coffee by-products and their applications. Molecules, 26(24), 7605. https://doi.org/10.3390/molecules26247605

Eggers, F., Risselada, H., Niemand, T., & Robledo, S. (2022). Referral campaigns for software startups: The impact of network characteristics on product adoption. Journal of Business Research, 145, 309–324. https://doi.org/10.1016/j.jbusres.2022.03.007

Erazo-Muñoz, P. A., Escobar-Ospina, A. L., & -Pineda, S. A. (2022). Motivación de los empleados: Importancia, evolución y enfoques usando análisis cienciométrico. Clío América, 16(31), 800–815. https://doi.org/10.21676/23897848.4907

Finkielkraut, A., & Jordà, J. (1987). La derrota del pensamiento. Editorial anagrama.

Freire, P. (2002). Concientización: Teoría y practica de una educación liberadora ([12. ed.].). Búsqueda de ayllu: Galerna.

Freire, P. (2010). Pedagogía de la indignación (3a ed.). Morata.

Geboers, E., Geijsel, F., Admiraal, W., & Ten Dam, G. (2015). Citizenship orientations and knowledge in primary and secondary education. Social Psychology of Education, 18(4), 749–767. https://doi.org/10.1007/s11218-014-9265-7

Ghoreifi, A., & Djaladat, H. (2022). Re: Xu aj, Shakir na, jun ms, zhao lc. Robotic assisted repair of post-ileal conduit parastomal hernia: Technique and outcomes. Urology. 2021. 08, 161, 157, 030, 2021. https://doi.org/S0090-4295(21)00819-0. Doi:10. 1016/j. https://doi.org/10.1016/j.urology.2021.12.001

Giangreco, A., Goethals, F., & Maes, J. (2013). An exploration of the research/teaching trade-off in the perception of business students. European Management Review, 10(2), 69–81. https://doi.org/10.1111/emre.12009

Goethe, J. W. V. (2012). Fausto I. Biblioteca Virtual Miguel de Cervantes. https://www.cervantesvirtual.com/obra/fausto-i/ (Obra original publicada en 1808)

Griffin, G., & Gauthier, C. (2004). Guidelines development and scientific uncertainty: Use of previous case studies to promote efficient production of guidelines on the care and use of fish in research, teaching and testing. Animal Welfare, 13(Suppl. 1), S181–S186. https://doi.org/10.1017/S0962728600014561

Griffiths, R. (2004). Knowledge production and the research–teaching nexus: The case of the built environment disciplines. Studies in Higher Education, 29(6), 709–726. https://doi.org/10.1080/0307507042000287212

Gros, B., Viader, M., Cornet, A., Martínez, M., Palés, J., & Sancho, M. (2020). The research-teaching nexus and its influence on student learning. International Journal of Higher Education, 9(3), 109. https://doi.org/10.5430/ijhe.v9n3p109

Hattie, J., & Marsh, H. W. (1996). The relationship between research and teaching: A meta-analysis. Review of Educational Research, 66(4), 507–542. https://doi.org/10.3102/00346543066004507

Healey, M., Jordan, F., Pell, B., & Short, C. (2010). The research–teaching nexus: A case study of students' awareness, experiences and perceptions of research. Innovations in Education and Teaching International, 47(2), 235–246. https://doi.org/10.1080/14703291003718968

Hessen, J. (2007). Teoría del conocimiento (1. Aufl.; 1. Nachdr). Losada.

Ho, A. P. C., Woods, P. C., Aziz, A. A., & Sin, N. M. (2013). Lecturers as knowledge workers and the self-management of their intellectual capital growth and development from a teaching to a research-teaching fusion-A Malaysian case study. International Journal of Learning and Intellectual Capital, 10(1), 88. https://doi.org/10.1504/IJLIC.2013.052078

Howell, K. (2021). Enhancing research and scholarly experiences based on students' awareness and perception of the research-teaching nexus: A student-centred approach. PLOS One, 16(9), Article e0257799. https://doi.org/10.1371/journal.pone.0257799

Hulpke, J., & Philosophy Documentation Center. (2022). Lorraine eden, Kathy lund dean, and paul m. Vaaler, the ethical professor: A practical guide to research, teaching and professional life. Business and Professional Ethics Journal, 41(1), 167–176. https://doi.org/10.5840/bpej20224115

Joly, M., & Horne, M. (1979). Diálogo en el infierno entre Maquiavelo y Montesquieu (1. ed. mexicana.). Seix Barral.

Kaasila, R., Lutovac, S., Komulainen, J., & Maikkola, M. (2021). From fragmented toward relational academic teacher identity: The role of research-teaching nexus. Higher Education, 82(3), 583–598. https://doi.org/10.1007/s10734-020-00670-8

Lambert, K., & Penney, D. (2020). Curriculum interpretation and policy enactment in health and physical education: Researching teacher educators as policy actors. Sport, Education and Society, 25(4), 378–394. https://doi.org/10.1080/13573322.2019.1613636

Lindsay, R., Breen, R., & Jenkins, A. (2002). Academic Research and Teaching Quality: The views of undergraduate and postgraduate students. Studies in Higher Education, 27(3), 309–327. https://doi.org/10.1080/03075070220000699

Liu, F., Lu, Y., & Wang, P. (2020). Why knowledge sharing in scientific research teams is difficult to sustain: An interpretation from the interactive perspective of knowledge hiding behavior. Frontiers in Psychology, 11, Article 537833. https://doi.org/10.3389/fpsyg.2020.537833

Loughran, J. (2007). Researching teacher education practices: Responding to the challenges, demands, and expectations of self-study. Journal of Teacher Education, 58(1), 12–20. https://doi.org/10.1177/0022487106296217

Marina, J. A. (2010). La inteligencia fracasada. Editorial Anagrama, 2010.

Mathieson, S. (2019). Integrating research, teaching and practice in the context of new institutional policies: A social practice approach. Higher Education, 78(5), 799–815. https://doi.org/10.1007/s10734-019-00371-x

Maturana, H. R. (1997). La objetividad: Un argumento para obligar. Dolmen Ediciones.

McDaniels, M., Pfund, C., & Barnicle, K. (2016). Creating dynamic learning communities in synchronous online courses: One approach from the center for the integration of research, teaching and learning(Cirtl). Online Learning, 20(1). https://doi.org/10.24059/olj.v20i1.518

Merrilees, J. (2016). The impact of dementia on family caregivers: What is research teaching us? Current Neurology and Neuroscience Reports, 16(10), 88. https://doi.org/10.1007/s11910-016-0692-z

Neumann, R. (1992). Perceptions of the teaching-research nexus: A framework for analysis. Higher Education, 23(2), 159–171. https://doi.org/10.1007/BF00143643

Newell, G. E., Beach, R., Smith, J., & VanDerHeide, J. (2011). Teaching and learning argumentative reading and writing: A review of research. Reading Research Quarterly, 46(3), 273–304. https://doi.org/10.1598/RRQ.46.3.4

Nietzsche, F. (2020). Más allá del bien y del mal. (Kindle). E-BOOKARAMA. https://www.amazon.com/-/es/Friedrich-Nietzsche-ebook/dp/B08MZB4QKS (Obra original publicada en 1886)

Parra, K. J., Osgood, M. P., & Pappas, D. L. (2010). A research-based laboratory course designed to strengthen the research-teaching nexus. Biochemistry and Molecular Biology Education, 38(3), 172–179. https://doi.org/10.1002/bmb.20358

Reid, J. W., & Gardner, G. E. (2020). Navigating tensions of research and teaching: Biology graduate students' perceptions of the research–teaching nexus within ecological contexts. CBE Life Sciences Education, 19(3), ar25. https://doi.org/10.1187/cbe.19-11-0218

Robledo, S., Duque, P., & Aguirre, A. M. G. (2023a). Word of mouth marketing: A scientometric analysis. Journal of Scientometric Research, 11(3), 436–446. https://doi.org/10.5530/jscires.11.3.47

Robledo, S., Vasquez, J. E., Duque3-Méndez, N. D., & Duque-Uribe, V. (2023b). Networking as an entrepreneurial marketing tool: The link between effectuation and word of mouth. Journal of Research in Marketing and Entrepreneurship, 25(2), 270–285. https://doi.org/10.1108/JRME-08-2020-0112

Robledo, S., Zuluaga, M., Valencia-Hernandez, L.-A., Arbelaez-Echeverri, O. A.-E., Duque, P., & Alzate-Cardona, J.-D. (2022). Tree of science with Scopus: A shiny application. Issues in Science and Technology Librarianship, (100). https://doi.org/10.29173/istl2698

Rojas Quiceno, G. (2018). Educación, colapso mental. Lulu COM.

Schönborn, K. J., & Anderson, T. R. (2010). Bridging the educational research-teaching practice gap: Foundations for assessing and developing biochemistry students' visual literacy. Biochemistry and Molecular Biology Education, 38(5), 347–354. https://doi.org/10.1002/bmb.20436

Spanierman, L. B., & Smith, L. (2017). Roles and responsibilities of white allies: Implications for research, teaching, and practice. The Counseling Psychologist, 45(5), 606–617. https://doi.org/10.1177/0011000017717712

Torino, G. C., Rivera, D. P., Capodilupo, C. M., Nadal, K. L., & Sue, D. W. (Eds.).(2019). Microaggression theory: Influence and implications. John Wiley & Sons, Inc.

Valencia-Hernandez, D. S., Robledo, S., Pinilla, R., Duque-Méndez, N. D., & Olivar-Tost, G. (2020). Sap algorithm for citation analysis: An improvement to tree of science. Ingeniería e Investigación, 40(1), 45–49. https://doi.org/10.15446/ing.investig.v40n1.77718

Vosmeer, M. (with Holloway-Attaway, L.). (2022). Interactive storytelling (1st ed.). Springer International Publishing AG: 15th international conference on interactive digital storytelling, icids 2022, santa cruz, ca, United States, December 4–7, 2022, proceedings.

Wallner, P. E., Anscher, M. S., Barker, C. A., Bassetti, M., Bristow, R. G., Cha, Y. I., Dicker, A. P., Formenti, S. C., Graves, E. E., Hahn, S. M., Hei, T. K., Kimmelman, A. C., Kirsch, D. G., Kozak, K. R., Lawrence, T. S., Marples, B., McBride, W. H., Mikkelsen, R. B., Park, C. C., . . . Steinberg, M. (2014). Current status and recommendations for the future of research, teaching, and testing in the biological sciences of radiation oncology: Report of the American Society for Radiation Oncology cancer biology/radiation biology task force, executive summary. International Journal of Radiation Oncology, Biology, Physics*Biology*Physics, 88(1), 11–17. https://doi.org/10.1016/j.ijrobp.2013.09.040

Xing, S. (2022). Ethical conflict and knowledge hiding in teams: Moderating role of workplace friendship in education sector. Frontiers in Psychology, 13, Article 824485. https://doi.org/10.3389/fpsyg.2022.824485

Zhang, Y., Rong, S., Dunlop, E., Jiang, R., Zhang, Z., & Tang, J. Q. (2023). Modeling the influence of individual differences on knowledge hiding. Journal of Knowledge Management, 27(6), 1637–1659. https://doi.org/10.1108/JKM-11-2021-0840

Zhao, H., & Luo, G. (2024). Being a victim: How knowledge hiding affects student creativity and performance in higher education. Knowledge Management Research and Practice, 22(5), 486–499. https://doi.org/10.1080/14778238.2024.2336078

Zuluaga, M., Robledo, S., Arbelaez-Echeverri, O., Osorio-Zuluaga, G. A., & Duque-Méndez, N. (2022). Tree of science – Tos: A web-based tool for scientific literature recommendation. Search less, research more! Issues in Science and Technology Librarianship, (100). https://doi.org/10.29173/istl2696

Cite this article: Mosquera-Albornoz DR, Nathanial-Supple S, Rojas-Quiceno G, López-Zuluaga JM. Teacher-Researcher: Uncertainties of Knowledge. Info Res Com. 2024;1(3):185-95