VILNIUS TECH
Vilnius Gediminas Technical University

15th International Scientific Conference "Business and Management 2025"
May 15–16, 2025, Vilnius, Lithuania

NEW TRENDS IN CONTEMPORARY ECONOMICS, BUSINESS AND MANAGEMENT

ISSN 2029-4441 / eISSN 2029-929X
eISBN 978-609-476-423-3
Article Number: bm.2025.1438
https://doi.org/10.3846/bm.2025.1438

V. NEW PERSPECTIVES ON MANAGEMENT AND RESILIENCE OF BUSINESS ORGANISATIONS https://vilniustech.lt/bm

RESEARCHER COMPETENCES IN HIGHER EDUCATION INSTITUTIONS: A BIBLIOMETRIC ANALYSIS

Anna STRAZDA

EKA University of Applied Sciences, Pernavas 62, Riga, LV-1009, Latvia

Received 20 March 2025; revised 16 April 2025; accepted 06 May 2025

Abstract. This study aims to analyse the existing body of knowledge on researcher competencies in higher education institutions using bibliometric techniques. The principal objectives are to identify key themes, trends, and research gaps. This study explores how emerging themes such as research ethics, open science, and digital literacy are reshaping researcher competencies and serves as the foundation for a future empirical study based on the European Competence Framework for Researchers. The author analysed how annual publication dynamics relate to significant events that occurred during peak years. The most popular journals were examined. A VOS viewer co-occurrence analysis was chosen as the method of examination, and all key terms were carefully analysed.

Keywords: researchers, competences, higher education institutions, bibliometric analysis, ResearchComp.

JEL Classification: I23, J24, D83.

1. Introduction

Researcher competencies play a crucial role in shaping the higher education landscape. Due to the increasing importance of interdisciplinary collaboration, open-science initiatives, and digitalization, researcher competencies are continuously expanding. The ability to conduct high-quality research is linked not only to domain-specific knowledge but also to methodological and ethical awareness, as well as the ability to collaborate (Bouter, 2020).

The main aim of this study is to analyse the body of knowledge on researcher competencies in the context of higher education institutions by applying bibliometric techniques.

While extensive knowledge about researcher competencies has been accumulated, these competencies continue to evolve and expand in response to constantly changing circumstances.

Bibliometric analysis offers a rigorous and objective approach to understanding of rapidly evolving research domain of researcher competencies in higher education. Unlike traditional narrative reviews, bibliometric analysis enables the identification of thematic clusters, citation patterns, and underexplored areas across large datasets (Donthu et al., 2021; Zupic & Čater, 2015). Previous bibliometric studies in education, technical and nursing competencies development have demonstrated the value of this approach in identifying key concepts and shaping future research agendas (e.g., Deepa et al., 2024, or Su et al., 2022). Applying bibliometric analysis to the topic of researcher competencies provides a systematic foundation for conceptualizing the field and validating emerging priorities such as research ethics, digital literacy, and open science.

The objectives of this study are:

- To identify key themes and trends in researcher competencies studies.
- To examine emerging topics such as research ethics, open science, and digital research skills.
- To explore research gaps and propose directions for future studies from the perspective of the European Competence Framework for Researchers (ResearchComp).

The following research questions were formulated for this study:

RQ1: What are the key themes in researcher competency studies?

RQ2: How do emerging trends, such as research ethics and digital literacy, influence the development of researcher competencies?

RQ3: What are the main gaps in the existing literature regarding researcher competencies?

* Corresponding author. E-mail: *anna.strazda@eka.edu.lv*

© 2025 The Authors. Published by Vilnius Gediminas Technical University. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC-BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

This study contributes to the discussion about researcher competencies by providing a structured bibliometric analysis of existing literature. The results of this study serve as a foundation for future empirical studies, particularly in relation to the European Competence Framework for Researchers. The paper is structured as follows: Section 2 provides the theoretical background of the study, Section 3 presents the methodology, Section 4 details the results and discussion, including main themes, an analysis of citations and keyword net visualization, as well as the implications of findings in the context of European Competence Framework for Researchers (ResearchComp). Finally, the author provides conclusions and recommendations for future research.

2. Theoretical background

Discussions about researcher competencies reveal a multifaceted and scattered landscape, emphasizing the critical role of researcher competencies in educational and professional development.

The concept of competence is complex and explained through various definitions and perspectives that differ in educational and business contexts (Kesy & Antoniewicz, 2023). Some definitions emphasize critical thinking, self-directed learning, and organizational skills, highlighting the need for recognized frameworks and assessment tools (Matjašič & Vogrinc, 2024).

Researcher competencies face various challenges, such as insufficient management of academic staff, institutional shortcomings, and student disengagement, emphasizing the necessity of innovative strategies in higher education institutions, as noted by Duche-Pérez et al. (2024). For example, for designers, researcher competencies are essential for their professional success, but as discussed by Rivera-Gutiérrez et al. (2024), core researcher competencies such as evaluating research or communicating findings are often insufficiently developed. In this regard, Tillaeva (2022) discusses the need for the early development of researcher skills through engagement in small research tasks that foster problem-solving skills and creative thinking. The integration of research skills into academic reading and writing, combined with interdisciplinary approaches, could contribute to the comprehensive development of graduate profiles (Castillo-Martínez & Rmírez-Montoya, 2021).

As presented in the literature, researcher competencies make a significant contribution to the overall research environment in higher education institutions. For example, the influence of researcher competencies on integrity is an important factor in ensuring scientific reliability, transparency, and ethical conduct. Research integrity is defined here as a commitment to ethical standards, values, and practices that are important for maintaining public trust and fostering a culture of research integrity within institutions (Colbert et al., 2018).

Research competencies play a central role in upholding these standards, as they directly impact research quality, rigor, and ethical conduct (Nguyen & Tuamsuk, 2024). For example, the ability to interpret and present research data accurately without manipulation or falsification is a fundamental research competence that ensures the reliability of research (Rao et al., 2024). Additionally, transparency in research requires disclosing conflicts of interest, methods, and limitations, all of which are essential for public trust and reliability (Tomassi et al., 2024).

Other research competencies closely related to research integrity include the ability to conduct rigorous experiments, avoid biases, and apply appropriate statistical methods (Farahani, 2022). Researchers must be able to identify and prevent potential sources of error, such as biased sampling or data fabrication, which threaten the integrity of their work (Rao et al., 2024).

Research ethics is the cornerstone of research integrity, encompassing principles such as respect for respondents, confidentiality, and commitment to ethical guidelines. Competencies such as awareness of informed consent, protection of respondents' privacy, and avoidance of conflicts of interest are highly relevant to ethical standards (van den Hoven et al., 2023). Additionally, researchers must be aware of the impact of new digital technologies (like Gen AI) on ethical conduct and ensure the responsible and transparent application of AI (Chen et al., 2024).

Studies show that the development of researcher competencies is not only an individual responsibility but also requires institutional support and training. Educational programs that foster research ethics, integrity, and responsible conduct are essential for creating a culture of research integrity (Tammeleht et al., 2022; van den Hoven et al., 2023). Higher education institutions must implement transparent policies and integrity guidelines, ensure appropriate training, and create an environment that supports ethical research practices (Lõuk, 2023). The issue of researcher competencies development must be addressed systematically, involving all stakeholders – researchers, institutions, funding agencies, and publishers (Evans et al., 2022).

Several prior studies have discussed systemic problems related to research integrity, despite its crucial importance. Among these challenges are the "pressure to publish", insufficient understanding of ethical norms, and a lack of institutional support (Jin et al., 2024; Yu & Wang, 2024). To address these issues, researchers must be equipped with appropriate competencies, while higher education institutions must prioritize research integrity and ethical conduct, providing support in cases of ethical dilemmas (Bouter, 2020).

In this study, European Competence Framework for Researchers (ResearchComp) was applied to establish a baseline for analysing various research competencies described in the literature.

ResearchComp (European Commission, n.d.) is a comprehensive tool developed to enhance research

quality by identifying different research competencies across various domains. The framework includes competencies such as research management, making an impact, self-management, cognitive abilities, collaboration, research tool management, and conducting research. All these competencies play a vital role in fostering innovation and career development within the European Research Area. This framework aligns with broader initiatives such as the European Green Deal and the European Qualifications Framework, which aim to integrate sustainability and interdisciplinary practices (Tomassi et al., 2024). The framework encourages researchers to develop their competencies, enabling them to solve complex problems and diversify their career paths (Penca et al., 2024).

3. Methodology

This study is based on bibliometric analysis, a well-recognized method for mapping the structure of a research field (Donthu et al., 2021; van Eck & Waltman, 2014). Bibliometric analysis allows for the systematic evaluation of research trends, key topics, and the identification of gaps by analysing patterns in scientific publications (Zupic & Čater, 2015). This is especially important in the context of research competencies, that are dynamic and rapidly changing and expanding. In this study, co-occurrence analysis was performed to identify new themes and conceptual connections in academic discourse in researcher competence landscape (Aria & Cuccurullo, 2017).

The dataset was extracted from the Web of Science (WoS) database, a widely recognized source of high-quality, peer-reviewed literature frequently used in bibliometric research (Mongeon & Paul-Hus, 2016). WoS is a reliable and curated source for bibliometric studies in the social sciences, particularly when aiming to map conceptual development, research trends, and co-authorship patterns over time (e.g., Yi et al., 2023 or Sezgin et al. 2022). As Sezgin et al. (2022) highlights, the structured nature of WoS and its compatibility with bibliometric tools such as VOS viewer make it especially suitable for uncovering thematic clusters and disciplinary shifts within education and competence-related fields.

The search strategy was designed to capture publications focusing on research competencies and research skills among researchers. The following search query was applied:

Keywords: *"research competencies"* OR *"research skills"* AND *"researchers"*. Initial results: 774 publications.

To enhance focus and relevance, the results were filtered by Web of Science Categories, selecting disciplines closely related to researcher competencies: Business, Economics, Ethics, Education, and Management. This refinement resulted in a final dataset of 321 publications, ensuring a targeted and high-quality selection for bibliometric analysis.

To explore the thematic structure of the field, keyword co-occurrence analysis was conducted using VOS viewer, a specialized software designed for bibliometric mapping (van Eck & Waltman, 2014). This method is particularly useful for revealing relationships between frequently occurring terms, thus identifying dominant research themes and emerging trends (Aria & Cuccurullo, 2017).

The co-occurrence network analysis was performed with the following parameters: a minimum keyword occurrence threshold of three occurrences per keyword; the association strength clustering technique, which enhances the detection of distinct thematic groupings (van Eck & Waltman, 2014); and visualization for optimal readability, ensuring that key clusters were clearly distinguishable.

The resulting co-occurrence network was analysed to detect major research clusters within the field. Each cluster was examined in terms of its central keywords, thematic significance, and contribution to the broader discourse on researcher competencies. By mapping these relationships, the study provides a structured understanding of how research competencies have evolved across disciplines and identifies gaps in the existing literature.

4. Results and discussion

Understanding the landscape of researcher competencies in higher education is essential for aligning academic training with contemporary research demands.

This Section presents a bibliometric analysis of research trends, leading publication venues, and thematic clusters related to researcher competencies. The findings are discussed in relation to the European Competence Framework for Researchers (ResearchComp) to assess which competencies are well-established in the literature and which remain underexplored.

The analysis is structured as follows:

1. Publication trends: Examining the evolution of research on researcher competencies (Figure 1).
2. Leading journals: Identifying key publication outlets contributing to this field (Figure 2).
3. Keyword Co-occurrence network: Analysing thematic clusters to understand core and emerging research areas (Figure 3, Table 1).
4. Comparison with ResearchComp: Evaluating how well the literature addresses key researcher competencies (Table 2).

By mapping the existing body of literature, this study identifies well-described fields, such as research methodologies and collaborations, while also highlighting gaps in leadership, digital literacy, and researcher well-being. The results of this study will be valuable for researchers, academic institutions, teachers, and policymakers who aim to improve competency-based research training and overall institutional integrity.

The publication dynamics of studies on researcher competencies in higher education, as depicted in Figure 1, demonstrate a clear upward trend from 2006 to 2024.

The number of publications indexed in Web of Science (WoS) has significantly increased, suggesting growing academic interest in this domain.

The period from 2006 to 2015 shows a gradual increase in publication volume, with fluctuations likely due to limited theoretical development and the fragmented nature of early research in the field (Zupic & Čater, 2015). A notable rise in publications is observed after 2016, indicating a shift toward formalized frameworks for researcher competencies. The peak in 2019–2020 aligns with increased discussions on digital research skills, open science, and ethical research conduct, which have become priority areas in global research policy (Dodds, 2019).

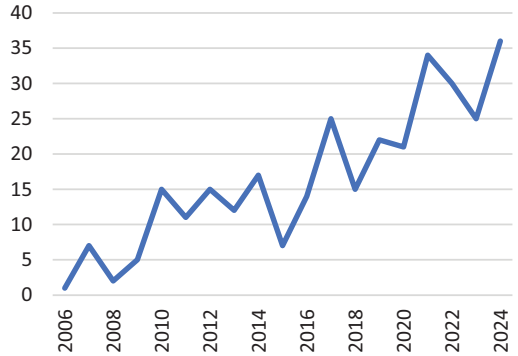


Figure 1. Publication dynamics (WoS)

The continued growth post-2020, despite minor fluctuations, suggests sustained research momentum. The sharp increase in 2021 might be attributed to COVID-19's impact on research methodologies, digital literacy, and the need for competency adaptation in remote academic environments (Hashim et al., 2022). The peak in 2024 suggests that researcher competencies remain an evolving and expanding field, with recent studies exploring AI-driven research methodologies, interdisciplinary collaboration, and research integrity training (Herman et al., 2024).

Figure 2 presents the top 10 journals publishing studies on researcher competencies in higher education. The distribution of publications suggests a strong focus on educational research, interdisciplinary approaches, and applied competency development.

The majority of leading journals belong to the education research domain, with outlets such as *Revista Conrado* (16 publications), *Frontiers in Education* (9 publications), *Education Sciences* (7 publications), and *Innovations in Education and Teaching International* (5 publications). This aligns with the broader trend of competency-based education models, which emphasize the integration of research skills into teaching and academic training (Baartman & de Bruijn, 2011).

Three major international conference proceedings – *INTED Proceedings*, *EDULEARN Proceedings,* and *ICERI Proceedings* – appear in the top 10. This suggests that research on researcher competencies is actively presented at global education and learning conferences, facilitating rapid knowledge dissemination (Oldac & Olivos, 2025). The high number of proceedings-based publications may indicate emerging or rapidly evolving research themes that have yet to fully mature in peer-reviewed journal articles (De Leon & McQuillin, 2018).

BMC Medical Education (14 publications) highlights the growing interest in research competencies within medical education, particularly in evidence-based practice and research integrity (Harden & Laidlaw, 2020), also focusing on assessment of research competencies in medical education programmes (e.g., Ianni et al. 2019).

Social Work Education (5 publications) suggests a focus on research skills for the social sciences and applied professional fields, where competency-based learning is crucial (Francis et al., 2020).

The diversity of leading journals reflects a multidisciplinary approach to researcher competencies, primarily within education, medical training, and the social sciences. Future research could explore publishing trends in additional disciplines, such as engineering, data science, and business research, to identify broader competency applications.

The keyword co-occurrence network (Figure 3) reveals a highly interconnected thematic structure, indicating that studies on researcher competencies are multidisciplinary and well-integrated.

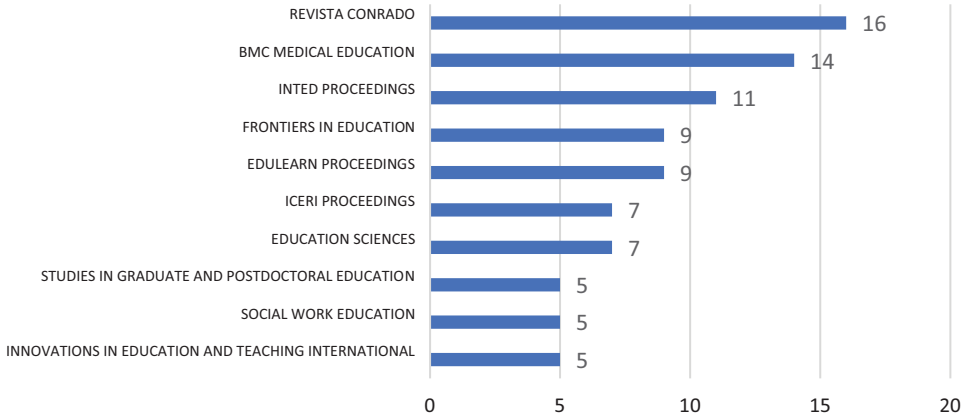


Figure 2. Top 10 journals (WoS)

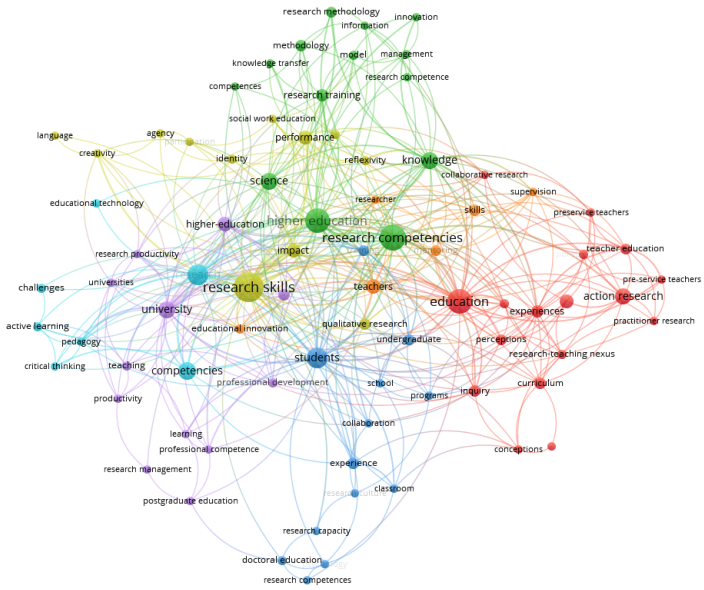


Figure 3. Co-occurrence keyword net (VOSviewer)

Central concepts such as "research competencies," "research skills," and "higher education" form a well-connected core, suggesting that these topics are widely recognized and discussed in the literature. Strong associations with terms like "education," "university," and "students" indicate a dominant focus on academic training and competency development in higher education (Oldac & Olivos, 2025). While some clusters exhibit strong internal connectivity, others are more loosely connected, indicating fragmented or emerging areas of study. The presence of terms like "digital literacy," "innovation," and "mentoring" suggests increasing attention to modern research skills but a potential lack of integration with the broader competency discourse (Herman et al., 2024).

Table 1. Major topics in bibliometric net (created by author)

Themes in bibliometric net	Keywords, examples	Author's comments
Research training and methodology (green cluster)	"Research training," "research methodology," "performance," "knowledge transfer"	Well explored
Action research and pedagogy (red cluster)	"Action research," "teacher education," "curriculum," "qualitative research"	Well explored in educational settings
Students and early career researchers (blue cluster)	"Students," "doctoral education," "learning," "professional competence"	Well explored on student level
Leadership and research management	Few connections, like "leadership," "research impact," or "project management."	Under-developed
Open science and digital competencies	Few connections to terms like "open access," "open science," "data management."	Under-developed
Ethical research and integrity	Weak co-occurrence of keywords related to research ethics, integrity, or responsible conduct.	Under-developed

End of Table 1

The bibliometric analysis revealed that both well-described and underexplored competencies exist in the observed literature. The central and well-established themes in the co-occurrence network include research training and methodology, pedagogy, and a focus on students and early-career researchers. The strong connections between "research methodology" and "higher education" indicate a well-developed understanding of how research competencies are built within formal education structures (Baartman & de Bruijn, 2011). The strong representation of early-stage research skills suggests that competency development is well-explored at the student level, but further research is needed on postdoctoral and senior researcher competencies (Tomassi et al., 2024). These themes align with the core competencies in the ResearchComp, particularly Research Knowledge and Intellectual Abilities (European Commission, n.d.).

Several competencies included in the ResearchComp receive less attention in the keyword network, indicating potential gaps in the literature. In the ResearchComp, Leadership and Project Management is a core research competency, yet it appears underdeveloped in the existing literature (European Commission, n.d.). This suggests that while research training is widely studied, how researchers lead projects and manage interdisciplinary teams is less explored (Herman et al., 2024). The ResearchComp highlights Open Science and Digital Literacy as critical competencies, yet bibliometric results show

a weak presence of these themes. This reflects an ongoing challenge in academia – transitioning towards open and reproducible research practices (Dodds, 2019). Ethical considerations are fundamental to research integrity, but bibliometric findings suggest they remain a secondary topic rather than a central competency (Bouter, 2020). This gap calls for stronger integration of research ethics training in competency frameworks.

The bibliometric analysis reveals both strengths and gaps in how researcher competencies are explored in the literature.

Well-explored areas: *Doing research* (research methodology, training, qualitative/quantitative skills) is the most established competence area. *Cognitive abilities*, such as critical thinking and reflexivity, are well-covered in educational research. Collaboration and interdisciplinary research (*Working with others*) is widely discussed, especially in the context of higher education and teacher training.

Underdeveloped or missing areas: Leadership and research management (*Managing research*) receive very little attention, despite their importance for senior researchers. Digital literacy and research tools (*Managing research tools*) are weakly represented, despite the increasing role of AI, big data, and open science in modern research. Science communication and societal impact (*Making an impact*) are rarely mentioned, indicating a gap in how researchers engage with the public and policymakers. *Self-management* is almost entirely absent, highlighting a lack of research on academic well-being, stress management, and career resilience.

5. Conclusions and future research

The aim of this study was to explore main topics and gaps around researcher competencies in higher education institutions. By aligning bibliometric analysis results with European Competence Framework for Researchers, this study highlighted well-discussed competence areas and identified the gaps, suggesting future directions for research.

Answering RQ1 *"What are the key themes in researcher competency studies?",* the results of bibliometric analysis showed, that researcher competencies are primarily connected to research training, methodology, and interdisciplinary collaboration. These align with several core areas in ResearchComp framework, particularly: *Doing research, Cognitive abilities, Working with others*. In literature such topics, like competency-based education, research methodologies, early-career development are widely discussed.

Answering RQ2 *"How do emerging trends, such as research ethics and digital literacy, influence the development of researcher competencies?",* the results of the study revealed, that emerging trends such as research integrity, open science, and digital literacy are reshaping and expanding researcher competencies, but they are not fully integrated into mainstream competence development discussions.

Answering RQ3 *"What are the main gaps in the existing literature regarding researcher competencies?",* the bibliometric analysis highlighted notable gaps in the ResearchComp areas like: *Managing research*, that suggests a critical gap in preparing researchers for management

Table 2. Comparison of bibliometric findings with ResearchComp competence areas (created by author)

ResearchComp competence area	Well-explored in literature	Underdeveloped areas
Cognitive abilities (critical thinking, problem-solving, creativity)	Strong presence of critical thinking, qualitative research, reflexivity	Limited focus on cognitive flexibility, metacognition, and interdisciplinary problem-solving
Doing research (research design, methodology, data analysis)	Research methodology, research skills, training, qualitative/ quantitative methods are well-established	Advanced data science, AI-driven research methods, open science, and reproducibility practices receive limited attention
Managing research (project management, funding acquisition, leadership)	Minimal presence of leadership, research impact, and project management in bibliometric network	Lack of research on academic leadership, research funding strategies, and interdisciplinary project coordination
Managing research tools (digital literacy, open science, technology use)	Scattered mentions of educational technology and innovation	Underdeveloped discussion on data management, open science practices, digital research tools, and AI-assisted research
Making an impact (science communication, societal impact, policy engagement)	Few references to research impact, knowledge transfer, and public engagement	Limited focus on science communication, research dissemination strategies, and measuring societal impact
Working with others (collaboration, networking, interdisciplinary teamwork)	Strong presence of collaborative research, interdisciplinary education, action research	Limited discussion of cross-sector collaboration, industry partnerships, and international research networks
Self-management (resilience, time management, work-life balance)	Almost no presence in bibliometric network	A major gap in literature on self-regulation, mental health in academia, stress management, and career resilience for researchers

roles; *Managing research tools*, that suggests the need for transition towards reproducibility, open data, and digital research tools; *Making an impact*, indicating the need for improved training in public engagement; *Self-management*, suggesting the need for closer attention to researcher well-being, career resilience, and stress management.

To bridge these gaps future studies should address leadership and research management training problems, ensuring the development of such competencies like project and funding management. Deeper exploration of digital competencies, open science, and AI-driven research tools is needed, integrating these into researcher competencies development frameworks. Important topic, that must be addressed in the future is societal impact, preparing researchers to engage with policymakers and the public. Additionally, researcher well-being and self-management skills must be addressed in the context of sustainable academic career.

By closing these gaps, academia can better align researcher training with real-world demands, ensuring that scholars are equipped with the full set of competencies needed for success in modern research environments.

Disclosure statement

Author declares that she doesn't have any competing financial, professional, or personal interests from other parties.

References

Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, *11*(4), 959–975. https://doi.org/10.1016/j.joi.2017.08.007

Baartman, L. K. J., & de Bruijn, E. (2011). Integrating knowledge, skills, and attitudes: Conceptualising learning processes towards vocational competence. *Educational Research Review*, *6*(2), 125–134. https://doi.org/10.1016/j.edurev.2011.03.001

Bouter, L. (2020). What research institutions can do to foster research integrity. *Science and Engineering Ethics*, *26*, 2363–2369. https://doi.org/10.1007/s11948-020-00178-5

Castillo-Martínez, I. M., & Ramírez-Montoya, M. S. (2021). Research competencies to develop academic reading and writing: A systematic literature review. *Frontiers in Education*, *5*, Article 576961. https://doi.org/10.3389/FEDUC.2020.576961

Chen, Z., Chen, C., Yang, G., He, X., Chi, X., Zeng, Z., & Chen, X. (2024). Research integrity in the era of artificial intelligence: Challenges and responses. *Medicine*, *103*(27), Article e38811. https://doi.org/10.1097/md.0000000000038811

Colbert, M. C., Nussenblatt, R. B., & Gottesman, M. M. (2018). Integrity in research: Principles for the conduct of research. In J. Gallin, F. Ognibene, & L. Johnson (Eds.), *Principles and practice of clinical research* (4th ed., pp. 33–46). Academic Press. https://doi.org/10.1016/B978-0-12-849905-4.00003-4

Deepa, R., Sekar, S., Malik, A., Kumar, J., & Attri, R. (2024). Impact of AI-focussed technologies on social and technical competencies for HR managers – A systematic review and research agenda. *Technological Forecasting and Social Change*, *202*, Article 123301. https://doi.org/10.1016/j.techfore.2024.123301

De Leon, F. L. L., & McQuillin, B. (2018). The role of conferences on the pathway to academic impact: Evidence from a natural experiment. *Journal of Human Resources*, 55(1), 164–193. https://doi.org/10.3368/jhr.55.1.1116-8387R

Dodds, F. (2019). The future of academic publishing: Revolution or evolution revisited. *Learned Publishing*, *32*(4), 345–354. https://doi.org/10.1002/leap.1258

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, *133*, 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070

Duche-Pérez, A. B., Plata, A. R. M. R., Grundy-López, R. E., & Flores, V. A. R. (2024). Research competencies and skills in universities: A systematic literature review. *Revista de Gestão – RGSA*, *18*(5), Article e07747. https://doi.org/10.24857/rgsa.v18n5-176

European Commission. (n.d.). *The European competence framework for researchers.* https://research-and-innovation.ec.europa.eu/document/download/7da29338-37bf-4d51-b5eb-a1571b84c7ad_en?filename=ec_rtd_research-competence-presentation.pdf

Evans, T. R., Pownall, M., Collins, E., Henderson, E. L., Pickering, J. S., O'Mahony, A. M., Zaneva, M., Jaquiery, M., & Dumbalska, T. (2022). A network of change: United action on research integrity. *BMC Research Notes*, *15*, Article 141. https://doi.org/10.1186/s13104-022-06026-y

Farahani, A. F. (2022). Prioritizing the researchers' important competencies in research centres *Technical Journal*, *16*(4), 557–565. https://doi.org/10.31803/tg-20200219135754

Francis, A. P., Ponnuswami, I., & Udah, H. (2020). Social work education, research and practice: Challenges and looking forward. In I. Ponnuswami & A. P. Francis (Eds.), *Social work education, research and practice* (pp. 275–288). Springer. https://doi.org/10.1007/978-981-15-9797-8_20

Harden, R. M., & Laidlaw, J. M. (2020). *Essential Skills for a medical teacher: An introduction to teaching and learning in medicine,* (3rd ed.). Elsevier.

Hashim, M. A. M., Tlemsani, I., & Matthews, R. (2022). Higher education strategy in digital transformation. *Education and Information Technologies*, *27*, 3171–3195. https://doi.org/10.1007/s10639-021-10739-1

Herman, E., Nicholas, D., Abrizah, A., Revez, J., Rodríguez-Bravo, B., Swigon, M., Clark, D., Xu, J., & Watkinson, A. (2024). The impact of AI on the post-pandemic generation of early career researchers: What we know or can predict from the published literature. *Learned Publishing*, *37*(4), Article e1623. https://doi.org/10.1002/leap.1623

Ianni, P. A., Samuels, E. M., Eakin, B. L., Perorazio, T. E., & Ellingrod, V. L. (2019). Assessments of research competencies for clinical investigators: A systematic review. *Evaluation and the Health Professions*, *44*(3), 268–278. https://doi.org/10.1177/0163278719896392

Jin, Y., Wei, J., Zhang, S., Luo, S., Yuan, L., Zou, X., & Liu, D. (2024). A study on the knowledge, attitude, and practice of research integrity among medical professionals in Ningxia, China. *BMC Medical Education*, *24*, Article 1355. https://doi.org/10.1186/s12909-024-06380-4

Kesy, M., & Antoniewicz, A. (2023). The evolution of perceptions of competency in the literature. *European Research Studies Journal*, *16*(4), 660–679. https://doi.org/10.35808/ersj/3319

Lõuk, K. (2023). Role-based responsibilities in securing research integrity: Increasing support for multi-level implementers. *Frontiers in Research Metrics and Analytics*, *8*, Article 1256426. https://doi.org/10.3389/frma.2023.1256426

Matjašič, M., & Vogrinc, J. (2024). Research competence of preservice teachers: A systematic literature review. *European Journal of Educational Research*, *13*(2), 877–984. https://doi.org/10.12973/eu-jer.13.2.877

Mongeon, P., & Paul-Hus, A. (2016). The journal coverage of Web of Science and Scopus: A comparative analysis. *Scientometrics*, *106*, 213–228. https://doi.org/10.1007/s11192-015-1765-5

Nguyen, L. T., & Tuamsuk, K. (2024). Factors influencing researchers' scientific integrity in scholarly publishing: A path analysis approach. *Research Ethics*, *21*(3), 384–407. https://doi.org/10.1177/17470161241257445

Oldac, Y. I., & Olivos, F. (2025). The development of higher education research topics between 2000 and 2021: Seven patterns from generalist journals. *Review of Education*, *13*(1), Article e70021. https://doi.org/10.1002/rev3.70021

Penca, J., Barbanti, A., Cvitanovic, C., Hamza-Chaffai, A., Elshazly, A., Jouffray, J.-B., Mejjad, N., & Mokos, M. (2024). Building competences for researchers working towards ocean sustainability. *Marine Policy*, *163*, Article 106132. https://doi.org/10.1016/j.marpol.2024.106132

Rao, K., Mair, M., Arora, R. D., Dange, P., & Nagarkar, N. M. (2024). Misconducts in research and methods to uphold research integrity. *Indian Journal of Cancer*, *61*(2), 354–359. https://doi.org/10.4103/ijc.ijc_4_23

Rivera-Gutiérrez, E., Higuera-Zimbrón, A. H., & Argüello, G. (2024). Research competencies to designers: A systematic literature review. *Journal of Human Resources Training*, *10*(25), 1–13. https://doi.org/10.35429/jhrt.2024.10.25.1.13

Su, W.-S., Hwang, G.-J., & Chang, C.-Y. (2022). Bibliometric analysis of core competencies associated nursing management publications. *Journal of Nursing Management*, *30*(7), 2869–2880. https://doi.org/10.1111/jonm.13795

Sezgin, A., Orbay, K., & Orbay, M. (2022). Educational research review from diverse perspectives: A bibliometric analysis of Web of Science (2011–2020). *SAGE Open*, *12*(4). https://doi.org/10.1177/21582440221141628

Tammeleht, A., Löfström, E., & Rodríguez-Triana, ja M. J. (2022). Facilitating development of research ethics and integrity leadership competencies. *International Journal for Educational Integrity*, *18*, Article 11. https://doi.org/10.1007/s40979-022-00102-3

Tillaeva, R. (2022). Methodological conditions for the formation of research competence in literary education. *Frontline Social Sciences and History Journal*, *2*(7), 60–68. https://doi.org/10.37547/social-fsshj-02-07-06

Tomassi, A., Caforio, A., Romano, E., Lamponi, E., & Pollini, A. (2024). The development of a competence framework for environmental education complying with the European qualifications framework and the European green deal. *The Journal of Environmental Education*, *55*(22), 153–179. https://doi.org/10.1080/00958964.2023.2259846

van Eck, N. J., & Waltman, L. (2014). Visualizing bibliometric networks. In Y. Ding, R. Rousseau, & D. Wolfram (Eds.), *Measuring scholarly impact* (pp. 285–320). Springer. https://doi.org/10.1007/978-3-319-10377-8_13

van den Hoven, M., Lindemann, T., Zollitsch, L., & Prieß-Buchheit, J. (2023). A taxonomy for research integrity training: Design, conduct, and improvements in research integrity courses. *Science and Engineering Ethics*, *29*, Article 14. https://doi.org/10.1007/s11948-022-00425-x

Yi, X., Yao, X., & Li, L. (2023). A bibliometric analysis of cultural heritage research in the humanities: The Web of Science as a tool of knowledge management. *Humanities and Social Sciences Communications*, *10*, Article 78. https://doi.org/10.1057/s41599-023-01582-5

Yu, X., & Wang, Q. (2024). Causes and countermeasures of research-integrity problems in the new era: From the perspective of the culture of science. *Cultures of Science*, *7*(2), 87–97. https://doi.org/10.1177/20966083241265517

Zupic, I., & Čater, T. (2015). Bibliometric methods in management and organization. *Organizational Research Methods*, *18*(3), 429–472. https://doi.org/10.1177/1094428114562629