

# Evolution of Teacher Autonomy Research: A Systematic Bibliometric Analysis

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## ABSTRACT

This bibliometric analysis examines the evolution of teacher autonomy research from 2013 to 2023, addressing the need for a comprehensive understanding of research trends, collaboration patterns, and knowledge distribution in this critical educational domain. Despite growing interest in teacher autonomy, there is limited systematic bibliometric analysis has previously mapped its development and identified key contributors across the global research landscape. Using bibliometric analysis techniques through Scopus database and VOSviewer visualisation tool, this study analysed publication patterns, citation impacts, geographical distributions, subject areas, and international collaborations. The analysis encompassed the manuscripts published between 2013 to 2023. Results reveal significant growth in publications, particularly post-2020, with the field nearly doubling from 40 (2013) to 102 publications (2023). The United States (113 publications) and United Kingdom (90 publications) emerge as leading contributors, while Social Sciences dominates subject areas (49.3%). Citation analysis identifies influential works focused on teacher well-being and technological integration. International collaboration networks show strong US-European partnerships and growing East-West research connections. The study concludes that teacher autonomy research is maturing into a globally collaborative, interdisciplinary field responsive to contemporary educational challenges. Future directions suggest expanding geographic representation, developing standardised measurement tools, and investigating emerging areas such as artificial intelligence's impact on teacher autonomy.

**Keywords:** Teacher Autonomy, Bibliometric Analysis, Educational Research, Research Collaboration, Citation Analysis

## INTRODUCTION

Teacher autonomy has emerged as a pivotal concept in educational research, reflecting the degree of independence educators have in instructional, curricular, and assessment decision [1], [2]. It plays a critical role in educational effectiveness and reform, influencing teaching quality, professional development, and student outcomes [3]. As education systems worldwide navigate rapid transformations, the need to understand the evolution and state of teacher autonomy research becomes increasingly vital for policy-making and educational practices [4].

The concept of teacher autonomy, described as the capacity of educators to make professional decisions regarding teaching practices and curriculum implementation [5], has gained substantial scholarly attention. Empirical evidence suggests that higher levels of teacher autonomy are associated with increased job satisfaction, professional commitment, and student achievement [6]. However, challenges such as standardised testing, curriculum standardisation, and heightened accountability measures have created significant tensions, necessitating a re-evaluation of teacher autonomy within contemporary educational landscapes [7], [8].

This bibliometric study aims to systematically evaluate the development of teacher autonomy research, addressing six pivotal research questions (RQ):

- **RQ1:** How have teacher autonomy challenges evolved in academic literature over time?
- **RQ2:** Who are the authors of the most influential articles?
- **RQ3:** Which countries contribute the most to publications?
- **RQ4:** What are the dominant subject areas of research?
- **RQ5:** Who are the top 10 most-cited authors?
- **RQ6:** What patterns exist in international co-authorship and collaboration?

By investigating these questions, the study aims to map the conceptual and geographical scope of teacher autonomy research, identify key contributors, and uncover collaborative networks that have influenced its progression [9], [10].

The significance of this bibliometric analysis lies in its ability to provide actionable insights for practitioners, scholars, and policymakers. Understanding how teacher autonomy research has evolved illuminates the relationship between autonomy and broader educational reforms. For example, studies on autonomy's interaction with performance-based accountability reveal critical tensions between regulatory demands and educators' professional independence [4], [8]. By identifying leading authors, publication trends, and international collaborations, this study contributes to advancing knowledge and fostering global dialogue on empowering educators [1], [11].

Furthermore, this analysis addresses a notable gap in the literature by offering a data-driven understanding of how teacher autonomy has been conceptualised and operationalised across different contexts. It provides a foundation for future research, facilitating the identification of knowledge gaps and enabling scholars to engage in impactful, interdisciplinary collaboration. Ultimately, this work enriches the discourse on teacher autonomy, positioning it as a cornerstone of educational quality and innovation [3], [12], [13].

## METHODOLOGY

Bibliometrics is a quantitative approach to analysing academic literature, and it is especially effective in tracking trends and challenges in specific fields, like teacher autonomy [14], [15]. The research questions focus on specific aspects of teacher autonomy, considering various factors like timeframes, regions, or educational levels. The methodology involves a systematic data collection from relevant academic databases of Scopus using well-crafted search terms. Notably, Elsevier's Scopus, known for its extensive coverage, facilitated the collection of publications spanning from 2013 to December 2023 for subsequent analysis. Analysis includes citation analysis to gauge the impact of articles, content analysis for identifying prevailing themes, co-authorship patterns, and geographical distribution to understand the global scope of the research. Moreover, to ensure the inclusion of high-quality publications, only articles published in rigorously peer-reviewed academic journals were considered, with a deliberate exclusion of articles non-English and in press stage.

The next steps involve data interpretation and visualisation. Tools like VOSviewer and Scopus analyser can be invaluable for creating visual representations of the data, such as citation networks or keyword co-occurrence maps. This visual analysis aids in interpreting trends, gaps, and emerging areas in the literature on teacher autonomy. The writing phase should clearly articulate these findings in a structured format, with sections including Introduction, Methodology, Results, Discussion, and Conclusion. Finally, consider ethical aspects by acknowledging limitations and maintaining transparency in the methods used. The goal is to not only provide a quantitative overview but also to offer insightful interpretations that can guide future scholarly inquiries in the field of education.

### Data search strategy

This study employed a screening sequence to determine the search terms for article retrieval. It was initiated by querying Scopus database with online, thereby assembling 4,545 articles. Afterwards, the query string was revised so that the search terms “teacher AND autonomy AND education” should be focussed on challenges. This process yielded 1,417 results which were additionally scrutinised to include only research articles in English and articles reviews were also excluded. The final search string refinement included 1,227 articles which was used for bibliometric analysis. As of December 2023, all articles from the Scopus database relating to teacher autonomy and focusing on challenges, were incorporated in the study.

The period 2013 to 2023 (refer to Table 1 and Table 2) was selected to capture a decade of significant developments in teacher autonomy research, reflecting shifts in educational policies, practices, and global challenges. This timeframe coincides with the rise of reforms like competency-based curricula, the integration of digital tools in education, and the impact of global events such as the coronavirus disease 2019 (COVID-19) pandemic, all of which redefined teacher autonomy [3], [6], [8]. Additionally, bibliometric techniques matured during this period, enabling more precise analysis of emerging trends, key contributors, and collaborative networks [16]. This decade provides a rich dataset to explore teacher autonomy’s evolution and its role in addressing contemporary educational challenges.

Table 1: The Search String

Database	Search String
Scopus	TITLE-ABS-KEY ( teacher AND autonomy AND education AND ( challenge* OR problem OR issue ) ) AND ( LIMIT-TO ( PUBYEAR , 2013 ) OR LIMIT-TO ( PUBYEAR , 2014 ) OR LIMIT-TO ( PUBYEAR , 2015 ) OR LIMIT-TO ( PUBYEAR , 2016 ) OR LIMIT-TO ( PUBYEAR , 2017 ) OR LIMIT-TO ( PUBYEAR , 2018 ) OR LIMIT-TO ( PUBYEAR , 2019 ) OR LIMIT-TO ( PUBYEAR , 2020 ) OR LIMIT-TO ( PUBYEAR , 2021 ) OR LIMIT-TO ( PUBYEAR , 2022 ) OR LIMIT-TO ( PUBYEAR , 2023 ) ) AND ( LIMIT-TO ( PUBSTAGE , "final" ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) )

Table 2: The Selection Criterion is Searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Timeline	2013 – 2023	< 2012
Publication Stage	Final	In Press

### Data analysis

The data set for this study, covering publications from 2013 to December 2023, was acquired from Scopus and analysed using VOSviewer version 1.6.19. VOSviewer applies clustering and mapping methodologies to create visualisations that reflect relationships between items based on their co-occurrence or similarity. Unlike traditional Multidimensional Scaling (MDS), which focuses on similarity measures such as Jaccard indexes and cosine, VOSviewer uses the association strength (AS) normalisation technique. This technique, as described by Cowan and Powell (2014), calculates AS as the ratio of observed co-authorship to expected co-authorship under the assumption of statistical independence. The software reduces the weighted sum of squared distances between items to map them accurately, implementing LinLog/modularity normalisation as recommended by Appio et al. (2014). Through its advanced visualisation techniques, VOSviewer uncovers mathematical patterns, enabling analyses such as co-authorship countries.

## FINDING

The publication trend of teacher autonomy research shows a significant upward trajectory from 2013 to 2023 (refer to Figure 1) based on RQ1. Starting from approximately 40 documents in 2013, the field experienced initial fluctuations until 2016. A consistent growth pattern emerged from 2017, with publications increasing from 60 to 78 documents by 2019. The most notable surge occurred between 2020 and 2021, jumping from 75 to 100 documents, coinciding with the global COVID-19 pandemic's impact on education. The field reached its peak in 2022 with 105 documents, followed by a slight decrease to 102 documents in 2023.

### RQ1: How have teacher autonomy challenges evolved in academic literature over time?

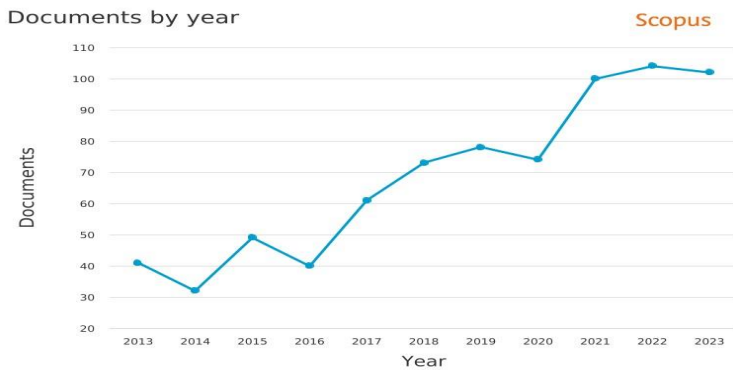


Figure 1: Publication trend of teacher autonomy research shows a significant upward trajectory

This overall growth pattern, particularly the sharp increase post-2020, reflects both the growing recognition of teacher autonomy as a crucial research area and the impact of global educational disruptions on research priorities. The sustained high publication output in recent years (2021 to 2023) indicates teacher autonomy's continued significance in educational scholarship.

Figure 2 reveals the top contributing authors in teacher autonomy research based on RQ2. Eight authors – Aguilar-Parra, J.M., González, A., Jenó, L.M., Keddie, A., Raaheim, A., Salokangas, M., Trigueros, R., and Vieira, F. – each contributed three documents to the field, demonstrating equal productivity at the highest level. Following closely, Amirian, S.M.R. and Angelides, P. each published two documents. This distribution pattern suggests a relatively balanced contribution among the leading researchers, with no single author dominating the field. The equal number of publications among the top eight authors indicates a collaborative and diverse research environment in teacher autonomy studies. Notably, these authors represent different geographical regions and institutions, suggesting the global nature of teacher autonomy research and the international interest in this educational domain. This analysis highlights the collaborative and distributed nature of scholarly contributions in the field of teacher autonomy research.

### RQ2: Who are the authors of the most influential articles?

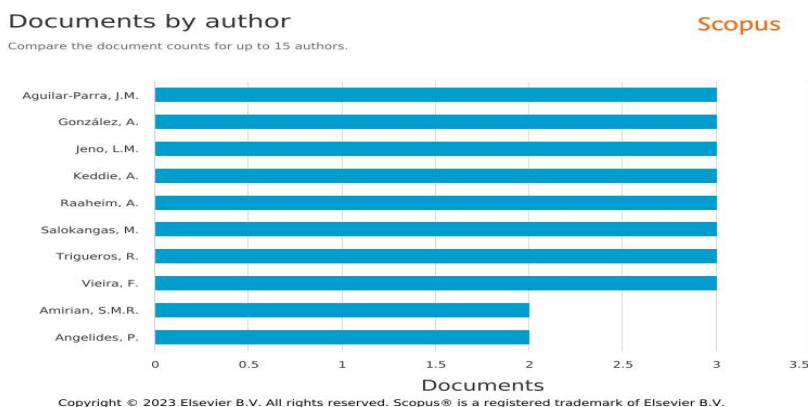


Figure 2: Top contributing authors in teacher autonomy research

Based on the data provided in Table 3 (RQ3), it shows the number of search results for articles matching the specified query terms published between 2013 to 2023, limited to English language articles in final publication stages. The geographical distribution of teacher autonomy research reveals significant disparities in publication output across countries. The United States leads substantially with 113 publications, followed by the United Kingdom with 90 publications, jointly representing the dominant Anglo-American influence in this field. Australia ranks third with 57 publications, while European countries show strong representation with Spain (45), Netherlands (37), Portugal (24), Sweden (18), Germany (17), Finland (16), and Norway (15) contributing significantly to the literature. Asian contributions are notable, with China producing 44 publications, Hong Kong and Indonesia each contributing 16 publications. Brazil stands out as the leading Latin American contributor with 31 publications, while Canada adds 20 publications to the North American total. This distribution pattern suggests that research on teacher autonomy is predominantly conducted in developed nations, with strong representation across Western countries and emerging contributions from Asian and Latin American regions.

**RQ3: Which countries contribute the most to publications?**

**Country Territory**

Table 3: List of Countries Contributed the Most to Publications

Country	No. of publication
United States	113
United Kingdom	90
Australia	57
Spain	45
China	44
Netherlands	37
Brazil	31
Portugal	24
Canada	20
Sweden	18
Germany	17
Finland	16
Hong Kong	16
Indonesia	16
Norway	15

Figure 3 shows that the distribution of research across subject areas reveals Social Sciences and Humanities as the dominant field, commanding 49.3% of publications, based on the RQ4. This prominence reflects the deep connection between teacher autonomy and broader societal contexts. Education specifically accounts for 19.3% of research, focusing on challenges within educational systems. Notable contributions come from Computer Science (9.7%), and Arts and Humanities (9.3%), suggesting growing interest in technological impacts and creative aspects of teaching autonomy. Psychology’s share (6.5%) indicates significant attention



to the psychological dimensions of teacher agency and well-being. Smaller but meaningful contributions from Business, Management, and Accounting (1.9%) and Environmental Science (1.9%) demonstrate the expanding scope of teacher autonomy research into organisational and sustainability contexts. This diverse subject distribution highlights the inherently interdisciplinary nature of teacher autonomy research. The field draws insights from multiple disciplines, creating a rich tapestry of perspectives on teacher empowerment and educational effectiveness. Understanding teacher autonomy challenges requires integrating knowledge from various fields, from social contexts to psychological experiences, suggesting that future research would benefit from continued cross-disciplinary collaboration and exploration of emerging areas.

**RQ 4: What are the dominant subject areas of research?**

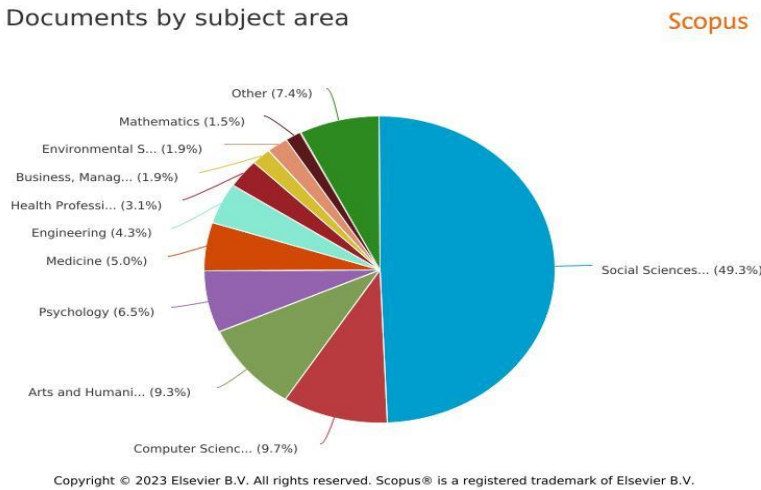


Figure 3: Dominant subject areas of research

Table 4 from RQ5 presents a list of academic articles along with their authors, titles, publication years, source titles, and the number of times each article has been cited. The citation analysis reveals the most influential publications in the field, with three papers notably receiving over 160 citations each. Leading the list with 185 citations is Kraft et al.’s 2023 study on the relationship between teacher burnout and student motivation, highlighting the contemporary relevance of teacher well-being research. Close behind is Hallkenyon et al.’s 2014 work on preschool teacher well-being (182 citations), and Richard’s 2015 study on language learning beyond the classroom (165 citations). The middle tier of highly cited works includes Bera and González’s 2019 research on promoting positive learning experiences (144 citations) and Furlong’s 2013 analysis of university discipline (143 citations). Other significant contributions include O’Dowd and Lewis’s 2016 study on online intercultural exchange (111 citations) and Li and Ranieri’s 2013 work on the digital divide (101 citations). More recent publications from 2019 to 2021 have also gained notable attention, including Kacetyl and Klímová’s study on smartphone applications in language learning (91 citations) and Fabriz’s research on asynchronous learning settings (88 citations). This distribution suggests both the enduring impact of foundational works and the field’s responsiveness to emerging educational challenges.

**RQ5: Who are the top 10 most-cited authors?**

Top 10 citation number by research

Table 4: List of the Top 10 Most-cited Authors

Authors	Title	Year	Source title	Cited by
Shen B.; McCaughtry N.; Martin J.; Garn A.; Kulik N.; Fahlman M. [19]	The relationship between teacher burnout and student motivation	2015	British Journal of Educational Psychology	185
Hall-Kenyon K.M.;	Preschool Teacher Well-Being:	2014	Early Childhood	182

Bullough R.V.; MacKay K.L.; Marshall E.E. [20]	A Review of the Literature		Education Journal	
Richards J.C. [21]	The changing face of language learning: Learning beyond the classroom	2015	RELC Journal	165
Bers M.U.; González-González C.; Armas-Torres M.B. [22]	Coding as a playground: Promoting positive learning experiences in childhood classrooms	2019	Computers and Education	144
Furlong J. [23]	Education – An anatomy of the discipline: Rescuing the university project?	2013	Education – An Anatomy of the Discipline: Rescuing the University Project?	143
O’Dowd R.; Lewis T. [24]	Online intercultural exchange: Policy, pedagogy, practice	2016	Online Intercultural Exchange: Policy, Pedagogy, Practice	111
Li Y.; Ranieri M. [25]	Educational and social correlates of the digital divide for rural and urban children: A study on primary school students in a provincial city of China	2013	Computers and Education	101
Kacetyl J.; Klímová B. [26]	Use of smartphone applications in English language learning—A challenge for foreign language education	2019	Education Sciences	91
Fabriz S.; Mendzheritskaya J.; Stehle S. [27]	Impact of Synchronous and Asynchronous Settings of Online Teaching and Learning in Higher Education on Students’ Learning Experience During COVID-19	2021	Frontiers in Psychology	88
Tomas L.; Evans N.S.; Doyle T.; Skamp K. [28]	Are first year students ready for a flipped classroom? A case for a flipped learning continuum	2019	International Journal of Educational Technology in Higher Education	83

The VOSviewer visualisation depicts the international collaboration patterns in teacher autonomy research between 2018 and 2020 (see Figure 4 based on RQ6). The network map reveals the United States and Spain as major collaborative hubs, indicated by their central positioning and multiple connecting lines to other countries. These nodes demonstrate strong research partnerships across different geographical regions. The colour gradient from blue (2018) to yellow (2020) represents the temporal evolution of collaborations. Countries like China, South Africa, and Finland show earlier collaborative patterns (blue-green), while Indonesia and Ireland demonstrate more recent research partnerships (yellow), suggesting an expanding global research network over time. The connecting lines between countries indicate the strength of research relationships, with thicker lines representing stronger collaborative ties. Notable collaborations exist between the United States and European countries (Netherlands, Germany, Denmark), as well as with Latin American nations (Colombia, Mexico). The presence of Asian countries (China, South Korea) and their connections to Western nations indicates growing East-West research partnerships. This visualisation highlights the increasingly global nature of teacher autonomy research and suggests a trend toward more diverse international

collaborations, particularly between established research centres and emerging contributors to the field.

**RQ6: What patterns exist in international co-authorship and collaboration?**

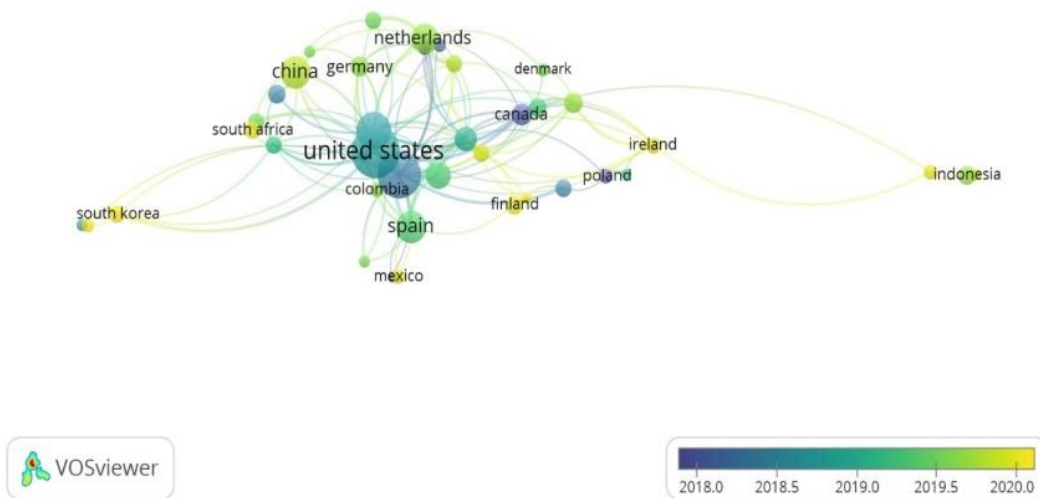


Figure 4: Patterns exist in international co-authorship and collaboration

**DISCUSSION**

The bibliometric analysis reveals significant trends in teacher autonomy research, highlighting both established patterns and emerging dynamics. The field has experienced remarkable growth, particularly during the COVID-19 pandemic period, with publications nearly doubling from 40 in 2013 to 102 in 2023. This surge reflects the increasing recognition of teacher autonomy’s importance in educational systems worldwide [20]. This growth pattern is mirrored in the geographical distribution of research, which demonstrates a clear Anglo-American dominance, with the United States (113 publications) and United Kingdom (90 publications) leading global contributions. However, the emergence of significant contributions from Asian countries, particularly China (44 publications), suggests a shifting landscape toward more diverse perspectives in teacher autonomy research [25].

Building on this geographical diversity, collaboration patterns reveal an increasingly interconnected research community, with strong networks forming between Western nations and emerging research centres. The VOSviewer analysis shows particularly robust connections between the United States and European partners, while also highlighting growing East-West collaborations. This trend toward international cooperation suggests a more nuanced understanding of teacher autonomy across different cultural contexts. Alongside these geographical patterns, the subject area distribution reflects the field’s intellectual diversity, dominated by Social Sciences (49.3%) but with significant contributions from Computer Science (9.7%) and Psychology (6.5%). This distribution indicates the field’s evolution beyond traditional educational research boundaries. This interdisciplinary approach is reflected in highly-cited works such as [22] Bers et al.’s (2019) study on coding in classrooms and Fabriz et al.’s (2021) [27] research on online teaching during COVID-19.

Further emphasising this evolution, citation patterns suggest that contemporary challenges, particularly teacher well-being and technological integration, are becoming central to the field. The high citation counts of works addressing burnout [29] and digital learning [26] demonstrate the field’s responsiveness to emerging educational challenges. Collectively, these interconnected trends indicate a maturing field that is becoming increasingly global and interdisciplinary while remaining responsive to contemporary educational challenges.

**CONCLUSION**

In summary, this bibliometric analysis of teacher autonomy research (2013 to 2023) reveals a dynamic and evolving field characterized by significant growth, particularly during the COVID-19 pandemic. The findings demonstrate the field's maturation through increased publications, diverse geographical contributions, and



expanding interdisciplinary connections. The dominance of Anglo-American research, coupled with emerging contributions from Asian and European countries, suggests both established traditions and evolving global perspectives. The interdisciplinary nature of the field, spanning social sciences, computer science, and psychology, reflects its comprehensive approach to understanding teacher autonomy in contemporary educational settings.

Looking ahead, several key directions emerge for future research. Priority should be given to expanding geographic representation by encouraging research from underrepresented regions and fostering international collaborations. The field would benefit from developing standardised measurement tools and increasing longitudinal studies. Emerging areas requiring attention include the impact of artificial intelligence on teacher autonomy, post-pandemic changes in autonomous teaching practices, and teacher autonomy in online and hybrid learning environments. Additionally, strengthening cross-disciplinary integration and bridging research-practice gaps through evidence-based policy recommendations will be crucial for advancing understanding of teacher autonomy while addressing contemporary educational challenges.

### Conflict of Interest

The authors of this study disclose that they have no conflicts of interest to declare.

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### REFERENCES

1. E. Karabacak, K. Němejc, and D. K. Yapicioğlu, "Everybody Has Their Own Image: Teacher Autonomy of the University Teachers," *Rural Environ. Educ. Personal.*, 2023, doi: 10.22616/reep.2023.16.016.
2. M. Frostenson, "Lärarnas avprofessionalisering och autonomins mångtydighet," vol. 14, no. 2, pp. 49–76, 2012.
3. Q. Ma, "The Role of Teacher Autonomy Support on Students' Academic Engagement and Resilience," *Front. Psychol.*, vol. 12, no. November, pp. 1–7, 2021, doi: 10.3389/fpsyg.2021.778581.
4. R. Erturk, "The Effect of Teacher Autonomy on Teachers' Professional Dedication," *Int. J. Psychol. Educ. Stud.*, vol. 10, no. 2, pp. 494–507, 2023, doi: 10.52380/ijpes.2023.10.2.1048.
5. L. C. Pearson and W. Moomaw, "The relationship between teacher autonomy and stress, work satisfaction, empowerment and professionalism," *Educ. Res. Q.*, vol. 29, no. 1, pp. 38–54, 2005.
6. D. Yang, P. Chen, H. Wang, K. Wang, and R. Huang, "Teachers' autonomy support and student engagement: A systematic literature review of longitudinal studies," *Front. Psychol.*, vol. 13, 2022, doi: 10.3389/fpsyg.2022.925955.
7. J. C. Hill-cloyd and C. L. Miller, "Undergraduate Research Journal for the Human Sciences Between Mandates and Molding Minds : The Challenge of Teacher Autonomy Today Between Mandates and Molding Minds : The Challenge of Teacher Autonomy," vol. 16, no. 1, 2023.
8. L. Parcerisa, A. Verger, M. P. Martín, and N. C. Browes, "Teacher autonomy in the age of performance-based accountability: A review based on teaching profession regulatory models (2017-2020)," *Educ. Policy Anal. Arch.*, vol. 30, 2022, doi: 10.14507/epaa.30.6204.
9. P. Hallinger and J. Lu, "Modelling the effects of principal leadership and school capacity on teacher professional learning in Hong Kong primary schools," *Sch. Leadersh. Manag.*, vol. 34, no. 5, pp. 481–501, 2014.
10. B. Manzano Vázquez, "Teacher education for autonomy: An analysis of language teacher education initiatives for learner and teacher autonomy," 2024, pp. 12–28. doi: 10.4324/9781003412021-2.
11. K. Dikilitaş and S. Mumford, "Teacher autonomy development through reading teacher research: agency, motivation and identity," *Innov. Lang. Learn. Teach.*, vol. 13, no. 3, pp. 253–266, 2019, doi: 10.1080/17501229.2018.1442471.
12. R. M. Ingersoll, "Short on power, long on responsibility," *Educ. Leadersh.*, vol. 65, no. 1, pp. 20–25, 2007.

13. S. Mokhlis and A. H. Abdullah, "Teachers' autonomy and innovative work behavior: the mediating role of schools' innovation climate," *Int. J. Eval. Res. Educ.*, vol. 13, no. 4, pp. 2108–2115, 2024, doi: 10.11591/ijere.v13i4.27697.
14. J. Jerrim, A. Morgan, and S. Sims, "Teacher autonomy: Good for pupils? Good for teachers?," *Br. Educ. Res. J.*, 2023, doi: 10.1002/berj.3892.
15. A. L. Lennert da Silva, "Comparing teacher autonomy in different models of educational governance," *Nord. J. Stud. Educ. Policy*, vol. 8, no. 2, pp. 103–118, 2021, doi: 10.1080/20020317.2021.1965372.
16. N. J. van Eck and L. Waltman, *Visualizing Bibliometric Networks*. 2014. doi: 10.1007/978-3-319-10377-8\_13.
17. Cowan & Powell, "Manual for VOSviewer version 1.6.10," *CWTS Meaningful metrics*, 2014.
18. F. P. Appio, F. Cesaroni, and A. Di Minin, "Visualizing the structure and bridges of the intellectual property management and strategy literature: a document co-citation analysis," *Scientometrics*, vol. 101, no. 1, pp. 623–661, 2014, doi: 10.1007/s11192-014-1329-0.
19. B. Shen, N. McCaughy, J. Martin, A. Garn, N. Kulik, and M. Fahlman, "The relationship between teacher burnout and student motivation," *Br. J. Educ. Psychol.*, 2015, doi: 10.1111/bjep.12089.
20. K. M. Hall-Kenyon, R. V Bullough, K. L. MacKay, and E. E. Marshall, "Preschool teacher well-being: A review of the literature," *Early Child. Educ. J.*, vol. 42, no. 3, pp. 153–162, 2014.
21. J. C. Richards, "The changing face of language learning: Learning beyond the classroom," *RELC J.*, 2015, doi: 10.1177/0033688214561621.
22. M. U. Bers, C. González-González, and M. B. Armas–Torres, "Coding as a playground: Promoting positive learning experiences in childhood classrooms," *Comput. Educ.*, vol. 138, pp. 130–145, 2019.
23. [23] J. Furlong, *Education - An anatomy of the discipline: Rescuing the university project?* 2013. doi: 10.4324/9780203078853.
24. S. Treloar, "Online intercultural exchange: Policy, pedagogy, practice," *Lang. Intercult. Commun.*, 2018, doi: 10.1080/14708477.2016.1258963.
25. Y. Li and M. Ranieri, "Educational and social correlates of the digital divide for rural and urban children: A study on primary school students in a provincial city of China," *Comput. Educ.*, vol. 60, no. 1, pp. 197–209, 2013.
26. J. Kacetyl and B. Klímová, "Use of smartphone applications in english language learning—A challenge for foreign language education," *Educ. Sci.*, vol. 9, no. 3, p. 179, 2019.
27. S. Fabriz, J. Mendzheritskaya, and S. Stehle, "Impact of synchronous and asynchronous settings of online teaching and learning in higher education on students' learning experience during COVID-19," *Front. Psychol.*, vol. 12, p. 733554, 2021.
28. L. Tomas, N. (Snowy) Evans, T. Doyle, and K. Skamp, "Are first year students ready for a flipped classroom? A case for a flipped learning continuum," *Int. J. Educ. Technol. High. Educ.*, 2019, doi: 10.1186/s41239-019-0135-4.
29. K. Wolfe, "The impact of high-performance work practices on employee burnout experience in UK higher education: a professional services perspective," *Perspect. Policy Pract. High. Educ.*, pp. 1–11, 2024, doi: 10.1080/13603108.2024.2392165.