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Comprehensive Analysis of Teachers' Creativity Based on Scopus Data

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Abstract. This paper presents a comprehensive analysis of research on teachers' creativity published between 2019 and 2024, using the Scopus database as the primary source. Rooted in the increasing recognition of creativity as a vital component of teachers' professional competence, the review addresses a critical gap in the existing literature by synthesizing research trends, influential contributors, and thematic directions in the field. Employing the PRISMA method, 508 articles were initially retrieved and rigorously filtered through inclusion and exclusion criteria, resulting in 30 articles selected for final analysis. The findings reveal a growing scholarly interest in teachers' creativity, particularly in response to educational challenges such as curriculum demands, technological integration, and the COVID-19 pandemic. Analysis of publication trends highlighted an upward trajectory in research output, with peak contributions in 2022 and 2023. Leading journals, such as *Frontiers in Education* and *Thinking Skills and Creativity*, have played pivotal roles in disseminating influential studies. Moreover, Indonesia, Spain, and Chile emerged as the most active contributors geographically. Thematically, research clusters emphasize the interconnection of creativity with professional development, pedagogical innovation, critical thinking, and digital tools. Notably, the study uncovered recurring barriers to creativity—ranging from time constraints to institutional limitations—while also identifying enabling factors such as leadership support and reflective practices. By providing a structured overview of recent research, this study offers valuable implications for educators, policymakers, and researchers. It underscores the need for targeted professional development and policy initiatives to cultivate creative competence among teachers. Future research should expand to include broader databases and explore cultural-contextual dimensions to enhance the applicability and impact of creative practices in education.

Keywords: teachers' creativity; competence; educational innovation; professional development; critical thinking

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1. Introduction

In modern education, creativity has increasingly become a subject of interest among researchers, with scholars recognizing the critical role of creativity in teachers' professional activities (Akyıldız & Çelik, 2020; Anderson et al., 2022). Although creativity can be examined from multiple perspectives, most researchers agree that it is manifested in the ability to identify novel issues, demonstrate unique thinking, and exhibit flexibility in various situations (Kizilay et al., 2023; Michaelidou & Pitri, 2022). Creativity is also considered a process of generating original products that are perceived as valuable and effective by society or social groups at a given time (Benić, 2021; Sali & Özbay Özdemir, 2023). Teachers' creativity is reflected in innovative pedagogical approaches (Abdullah et al., 2021) and their sensitivity to educational contexts (Demirtaş & Karaduman, 2021).

Creative potential provides teachers with numerous advantages in their professional activities. It enables them to apply specialized knowledge flexibly and effectively (Marangio et al., 2024; Makris et al., 2022), serves as a driving force for fostering students' creativity (Kirişçi, 2023; Kyritsi & Davis, 2021), and acts as a crucial factor in combating stagnation and extremism in education (Remiswal et al., 2023). Additionally, creativity enhances teachers' competitiveness in the profession (Rybkin & Grebennikova, 2019), improves teaching methodologies, and elevates the overall quality of instruction (Sánchez et al., 2022; Swanzy-Impraim et al., 2023). It also plays a vital role in ensuring teachers' career success (Wang & Dai, 2024).

Despite the advantages that creativity holds, teachers also face numerous barriers and challenges in its application. The major obstacles include content-heavy curricula, exam-oriented education, time constraints, and limitations in technological integration (Akyıldız & Çelik, 2020). Other challenges include curriculum pressure, exam stress, and time limitations (Kalantari et al., 2023), as well as external factors such as pandemics (Al-khresheh, 2022) and limited digital literacy (Guillén-Gámez et al., 2023).

Several scholars have conducted reviews of previous research on creativity, analyzing its concepts, structure, and influencing factors (Harjono et al., 2024; İflazoğlu Saban & Erden Özcan, 2022; Nja et al., 2022; Tamsah et al., 2021), with the ultimate goal of proposing measures to enhance teachers' creativity. While past research has provided valuable theoretical and practical insights, these studies are often confined to specific subjects (Mateos-Moreno & Garcia-Perals, 2024; Matthews et al., 2023). A comprehensive review of creativity in teaching is still lacking, leaving a gap in literature that makes it challenging for future researchers and readers to gain a holistic perspective on this field (Han & Abdrahim, 2023).

The purpose of this study is to fill this gap by providing a comprehensive review of teachers' creativity within the context of modern education. To the best of our knowledge, no previous studies have systematically investigated this topic, making our research a unique contribution to the theoretical framework of

creativity in education, particularly regarding teachers. In this study, we address the following research questions:
1. How have publication trends in Scopus on this topic evolved over the past five years?
2. Which journals, authors, and articles are most influential in research on teachers' creativity?
3. Which countries have contributed the most research on teachers' creativity?
4. What key issues related to teachers' creativity have attracted scholarly attention?
5. What are the recent research trends, and how do they relate to teachers' creativity?

Addressing these research questions will provide researchers, education administrators, and teachers with a comprehensive overview of teachers' creativity. This, in turn, will pave the way for further discoveries in the future. The remainder of this article is structured as follows: Section 2 discusses related studies, Section 3 details the research methodology, Section 4 discusses the research findings, and Section 5 provides a discussion of the findings. The conclusion, along with research limitations and future directions, is presented in Section 6.

2. Literature Review

Numerous studies have explored teacher creativity in professional practice. This research is instrumental in identifying solutions to enhance teaching quality in educational institutions. Scholars consistently emphasize the significance of creativity in teachers' professional activities, as well as the challenges they face in fostering creativity (Calavia et al., 2021; de la Peña Álvarez, 2019). Similarly, other studies assert that creativity serves as a fundamental pillar of the teaching profession. It not only plays a crucial role in pedagogical approaches but also acts as a motivational force that helps teachers persist in their career aspirations and remain committed to their profession (Frawley, 2020). Creativity manifests not only in professional engagement but also in the willingness to embrace risks in teaching practice (Massie et al., 2022).

Another group of researchers has highlighted that creative potential is characterized by fluency, uniqueness, originality in thinking, and the ability to generate goal-oriented solutions, establish social connections, and propose innovative responses to problems (Zholdasbekov et al., 2019). A qualitative study involving 13 preschool teachers further revealed that creativity, creative individuals, and a creative learning environment are essential factors shaping preschool teachers' holistic beliefs about creativity (Hua & Yang, 2024).

Regarding thinking and creative skills, Sun et al. (2021) examined 512 middle school students in China, focusing on teacher cognitive support and its impact on students' creative abilities. Their findings indicate that creativity plays a crucial role in the cognitive support teachers provide for student thinking (Sun et al., 2021). This perspective is also supported by research from Swanzy-Impraim et al. (2022), who analyzed data from 16 art teachers in Ghana. Their study concluded

that fostering creativity in students largely depends on how teachers define and understand creativity (Swanzy-Impraim et al., 2022) as well as the structure of the curriculum (Swanzy-Impraim et al., 2023b).

Several studies have delved into teacher creativity within specific teaching environments, considering different educational levels and subject areas. For instance, research on preschool teachers' creativity highlights their perspectives and attitudes toward creativity, linking it to their implicit beliefs about innovation in teaching (Dolenc & Čehovin, 2020). Similarly, Ibrayeva et al. (2022) found that teachers' beliefs about creativity significantly influence the effective implementation of learning activities in secondary education (Ibrayeva et al., 2022). Regarding elementary school teachers, another study has confirmed that creative teaching practices influence students' creativity, concluding that fostering creativity requires schools to establish reflective and constructive learning spaces that promote diversity, equity, and collaboration (Kyritsi & Davis, 2021).

Creativity has also been examined across different teaching disciplines. For example, Leikin and Elgrably (2020) investigated 68 mathematics teachers who participated in a course that required them to solve learning tasks using multiple solutions. Their findings suggest that proof-based reasoning and creativity significantly enhanced their mathematical competence (Leikin & Elgrably, 2020). Creativity in English language instruction has also garnered scholarly attention. Matthews (2022) explored the limitations and barriers to creativity among English teachers when integrating poetry and performance culture into their teaching, identifying constraints stemming from both internal and external factors (Matthews, 2022).

3. Methodology

To conduct the literature review, we employed the PRISMA method (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) (Moher et al., 2014). PRISMA offers a clear and systematic approach to literature synthesis, providing researchers with a comprehensive and holistic perspective on the research topic (Han & Abdrahim, 2023). One of the main strengths of PRISMA is its ability to deliver detailed and reliable information about the review process and findings, thereby enhancing the transparency and quality of systematic reviews and increasing the credibility of the results. The PRISMA framework can be effectively applied across various research fields, ensuring consistency and reliability in scientific reporting (Haddaway et al., 2022; Moher et al., 2016). However, a noted limitation of PRISMA is that full adherence to its guidelines may require considerable time and resources, which can pose challenges for smaller-scale studies or research teams with limited personnel.

3.1 Eligibility Criteria

To be eligible for analysis, the selected articles had to meet the following criteria:

- Published between 2019 and 2024.
- Published in academic journals.
- Peer-reviewed.

- Aligned with the study's research topic.
- Written in English.
- Fully accessible for content analysis.

Articles meeting any of the following criteria were excluded from the dataset:

- Published outside the timeframe of 2019 to 2024.
- Not published in academic journals (e.g., books, conference proceedings, reports).
- Not peer-reviewed.
- Not aligned with the study's research topic.
- Not written in English.
- Not accessible for full-text analysis.

3.2 Information Sources

We selected the Scopus database as the primary source for identifying and analyzing publications related to teacher creativity. Scopus is recognized as a reputable and comprehensive academic indexing platform (Singh et al., 2021). It encompasses a broad spectrum of disciplines, including social sciences, psychology, the arts and humanities, and computer science, among other disciplines. Compared to other indexing services, such as Web of Science, Google Scholar, DOAJ, PubMed, PsycINFO, and ERIC, Scopus offers advanced research tools tailored for academic inquiry. Importantly, all Scopus-indexed publications undergo a peer-review process, ensuring a high standard of academic integrity and reliability.

Owing to its robust search capabilities and scholarly credibility, Scopus is widely adopted to conduct literature assessments and evidence-based research (Nguyen et al., 2023; Thu et al., 2024; Zainal Abidin et al., 2023). It is also noteworthy that 99.11% of journals listed in Web of Science are also included in Scopus (Singh et al., 2021). These advantages have led many researchers to rely exclusively on Scopus for systematic literature reviews (Chamorro-Atalaya et al., 2023; Thu et al., 2024; Zainal Abidin et al., 2023). Therefore, we considered Scopus to be a reliable and sufficient source for the purposes of our review.

3.3 Search Criteria

We applied the following search strategy to retrieve relevant articles: At least one keyword related to "creativity" and "teachers" had to appear in the "Article title" field. After applying our selection filters, the final Scopus query was TITLE ("creativity" AND "teachers") AND (LIMIT-TO (SUBJAREA, "SOCI")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (SRCTYPE, "j")) AND (LIMIT-TO (LANGUAGE, "English")). Using this method, we retrieved a total of 508 articles from Scopus, published between January 2019 and August 19, 2024.

We conducted the study in two phases: the screening phase and the eligibility phase. In the screening phase, two independent researchers evaluated the title, abstract, and keywords of each article to assess its relevance. In cases of disagreement, a third researcher reviewed the article and cast the deciding vote. Similarly, during the eligibility phase, the full-text articles were read by the same

two researchers. If disagreements occurred, all three researchers participated in the final decision through a voting process.

3.4 Article Selection

Following the above process, a total of 30 articles were deemed eligible for inclusion in our final analysis. Figure 1 illustrates the article selection process. The initial search—limited by year—retrieved 508 records. After applying additional exclusion criteria, 117 records were removed. The remaining 391 articles were screened for relevance based on title, content, journal type, and language. Among these, 50 articles were excluded due to a lack of accessibility. The remaining 300 articles were manually reviewed. After a rigorous evaluation, 30 articles were selected as the most suitable and methodologically sound for our study.

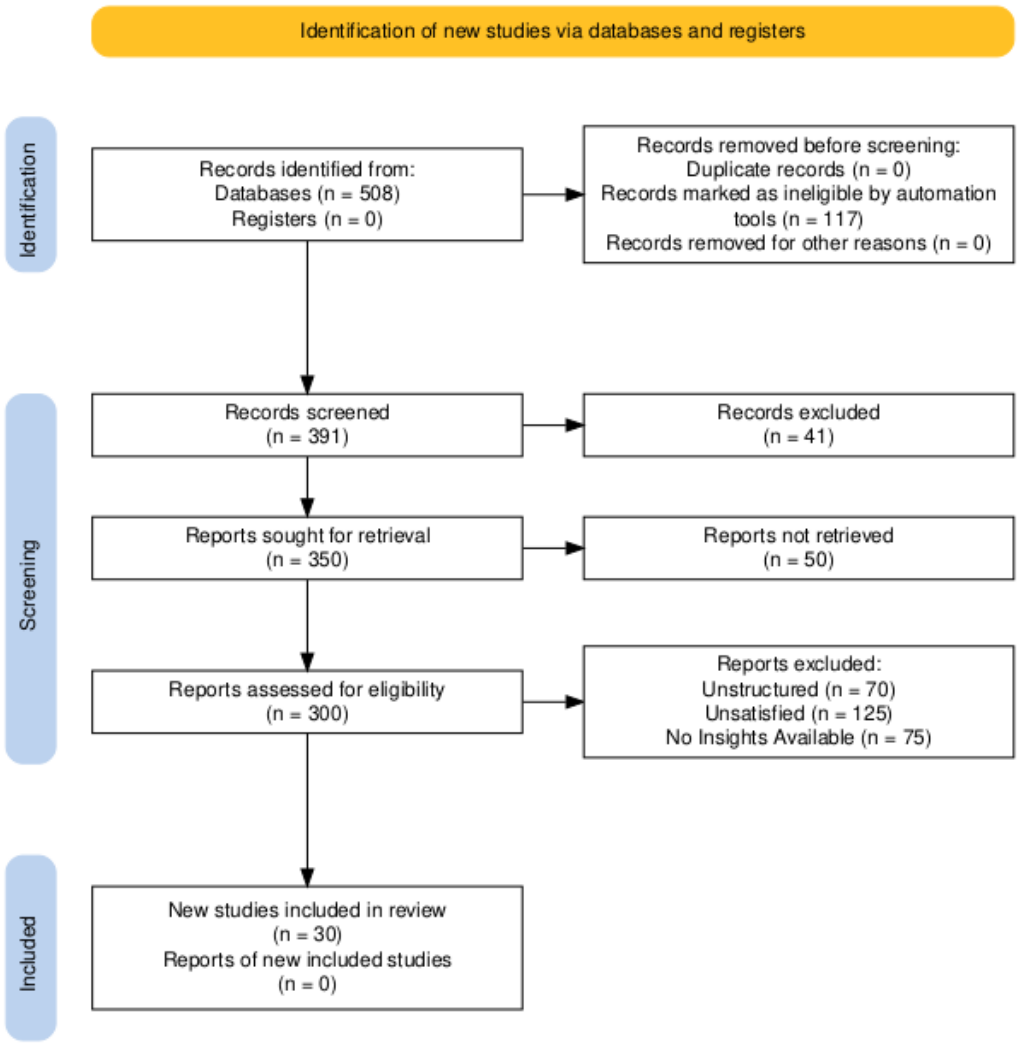

Figure 1: PRISMA flow diagram illustrating the article selection process

Figure 1 presents the PRISMA flow diagram used to describe the different stages in the systematic review process. We performed a search in the Scopus database and retrieved a total of 508 records. Each article was independently screened to remove irrelevant items. After filtering by publication year, 117 records were excluded. Independent researchers continued to screen the remaining articles and

identified 350 eligible records based on the title, abstract, and keywords. Following a detailed assessment and review, a total of 388 articles were excluded, leaving 120 articles for manual examination. After a comprehensive evaluation, 30 articles were selected for final analysis.

3.5 Data Collection Process

Two independent researchers were responsible for extracting variables for data analysis, working at a ratio of 14:13. To ensure consistency and reliability, each researcher also extracted variables from five randomly selected articles that were initially reviewed by the other. The data were considered valid and retained if the agreement rate between the two researchers exceeded 85% across the ten overlapping articles. In cases where the match rate fell below this threshold, a third researcher was brought in to revise and clarify the variable extraction protocol. The process was then repeated until the inter-rater agreement surpassed 85%. The variables extracted for analysis included: author(s), title, publication year, source title (journal), citation count, country, author keywords, and other externally cited information.

3.6 Data Items and Synthesis of Results

The data were stored in comma-separated values (.csv) format due to its compatibility with most software applications. Three tools were utilized for data analysis and synthesis: Microsoft Excel to aggregate the data and generate charts, VOSviewer to construct keyword networks and clustering, and WordCloud to visualize keyword clouds.

4. Results

4.1 Publication Trends on Teachers' Creative Competence over the Past Five Years

Figure 2 provides a visual representation of the publication trends of the selected articles analyzed from 2019 to 2024.

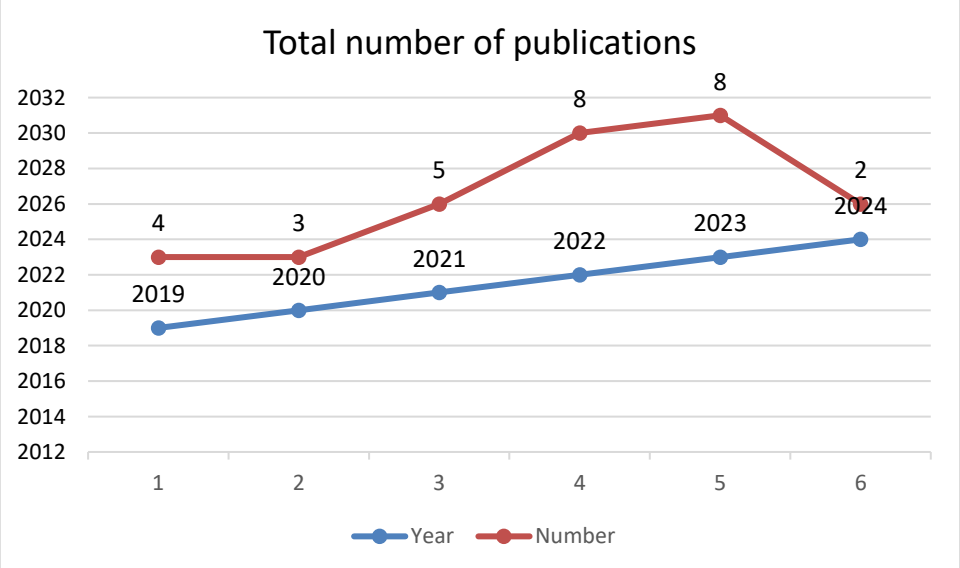

Figure 2: Publication trends of the selected studies from 2019 to 2024

Altogether, 30 publications were included in the analysis. Data analysis revealed an uneven distribution of publications across the years. Overall, there is a growing trend in the number of studies on teachers' creative competence from 2019 to 2024. In 2020, the number of publications decreased, which can be attributed to the peak of the COVID-19 pandemic. This period severely impacted on all aspects of social life, including teachers' professional activities. In the following years, the number of publications showed an increasing trend, with five studies published in 2021 and a peak of eight publications each year in 2022 and 2023. As for 2024, only two articles had been published by August. However, it is too early to determine whether this reflects an increase or decrease, as the year has not concluded at the time of data collection. Nevertheless, the data indicates that this topic continues to attract scholarly interest and is likely to be further explored in future research.

4.2 Major Sources and Key Contributors to the Topic of Teachers' Creative Competence

Figure 3 presents data on the journals that published the 30 analyzed articles related to teachers' creative competence. *Frontiers in Education* emerged as the leading contributor in this field, with a total of four publications. It was followed by *Thinking Skills and Creativity*, which published two articles. The remaining journals contributed an equal number of publications (n = 1).

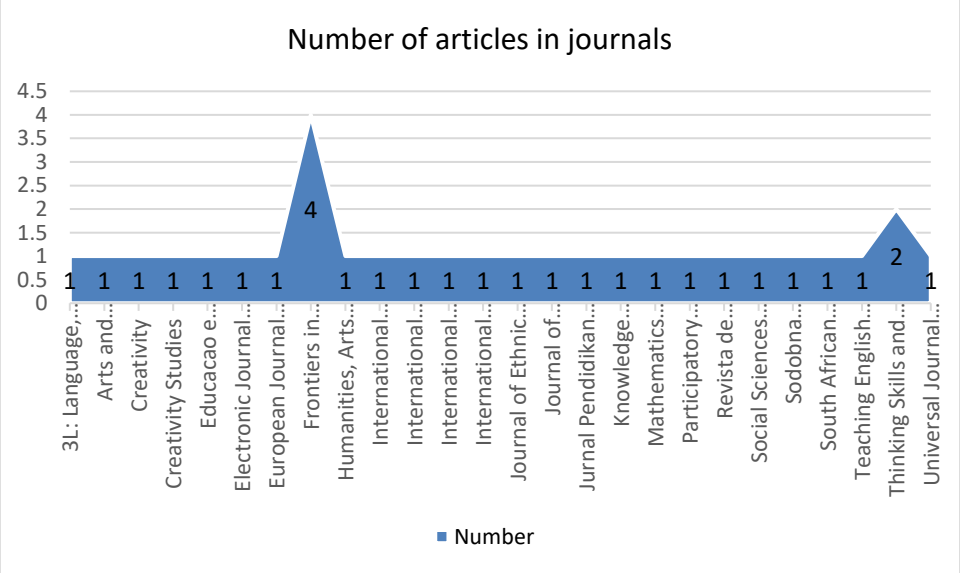

Figure 3: Journals in which the selected articles were published

In addition, Table 1 also presents which of the 30 analyzed articles were cited most in other publications. The table shows the two articles that attracted the highest level of scholarly attention in the field of teachers' creative competence. The first is "Fostering creativity as a problem-solving competence through design: Think-Create-Learn, a tool for teachers" by Calavia M. B., Blanco, T., and Casas, R., published in *Thinking Skills and Creativity*, which had received 28 citations in Scopus and 105 citations according to Google Scholar. The second article is "Creativity through self-directed learning: Three distinct dimensions of teacher

support" by Morris, T. H., published in the *International Journal of Lifelong Education*, with 27 citations in Scopus and 71 in Google Scholar.

Table 1: Top thirteen most cited articles on teachers' creative competence

No	Title	Citation count
1	Fostering creativity as a problem-solving competence through design: Think-Create-Learn, a tool for teachers	28
2	Creativity through self-directed learning: Three distinct dimensions of teacher support	27
3	Essential, unexceptional and universal: Teacher implicit beliefs of creativity	17
4	Significance of creativity and its development in mathematics classes for preservice teachers who are not trained to develop students' creativity	16
5	Create teaching creativity through training management, effectiveness training, and teacher quality in the Covid-19 pandemic	15
6	Teacher's innovative behavior in Indonesian school: The role of knowledge management, creativity and OCB	8
7	Creativity and initial teacher education: Reflections of secondary visual arts teachers in Ghana	7
8	Music teachers' self-reported views of creativity in the context of their work	7
9	Students and teachers implicit and explicit theories of creativity	7
10	Importance of creativity and learning in preservice teachers	6
11	Primary school science teachers' creativity and practice in Malaysia	6
12	Cognition, conscience, and creativity: Multimedia-based literature teaching for pre-service teachers in Indonesia	5
13	Creatividad, innovación pedagógica y educativa: Análisis de la percepción de un grupo de docentes chilenos [Creativity, pedagogical, and educational innovation: Analysis of the perception of a group of Chilean teachers]	5

Following the two most cited articles were several other notable articles: "Essential, unexceptional and universal: Teacher implicit beliefs of creativity" by Cropley D. H., Patston T., Marrone R. L., and Kaufman J.C., published in *Thinking Skills and Creativity*, with 17 citations in Scopus (54 in Google Scholar); "Significance of creativity and its development in mathematics classes for preservice teachers who are not trained to develop students' creativity" by Sánchez A., Font V., and Breda A., published in the *Mathematics Education Research Journal*, with 16 citations in Scopus (55 in Google Scholar); "*Create teaching creativity through training management, effectiveness training, and teacher quality in the Covid-19 pandemic"* by Tamsah H., Ilyas J. B., and Yusriadi Y., with 15 citations in

Scopus and 115 in Google Scholar. The remaining articles in the list received between 5 and 8 citations each.

A detailed analysis of the selected articles revealed that teachers' creative competence is a subject of considerable academic interest. With 28 citations, the most cited article emphasizes the importance of creativity in education and proposes strategies to foster teachers' creativity in instructional practices. This study conducted a literature review to identify factors that enhance creativity in the classroom and defined 15 key indicators of creativity in education, namely, incorporation, practicality, novelty, atmosphere, stimulation, analysis, cooperation, intrinsic motivation, participation, flexibility, uncertainty, time, divergence, self-evaluation, and redefinition.

Based on these indicators, the authors proposed a methodological approach and a practical resource kit to help teachers promote creativity in any learning environment. The "Think-Create-Learn" model is grounded in accessible and intuitive design tools, encouraging problem-solving through creative approaches, connecting content to learners' interests and real-life contexts, and fostering new learning competencies (Calavia et al., 2021).

The second most influential article (27 citations) also highlights the importance of creative competence in educational settings. Morris (2020) examined self-directed learning in adult education contexts, framing it as a pragmatic learning process. The study concludes that (1) creative learning outcomes can be supported through self-directed learning, and (2) teachers can provide support in three distinct ways. The article discusses a range of pragmatic educational activities that foster self-directed and creative learning, including experiential learning, workplace simulations, and problem-, case-, and (e-)portfolio-based learning.

Another significant study, by Cropley et al. (2019), investigated teachers' implicit beliefs about creativity. The study identified variations across gender, teaching specialization, education level (primary vs. secondary), and teachers' self-perceptions of their own creativity. The findings carry important implications for teacher training and professional development. Furthermore, Sánchez et al. (2022) analyzed 198 master's capstone projects to explore which aspects of teaching and learning processes are associated with creativity.

The authors found that many pre-service teachers believed creativity indirectly stems from various classroom practices. Similarly, Tamsah et al. (2021) conducted an online survey to examine creativity in adapting teaching and learning models during the COVID-19 pandemic in Indonesia. Responses from 417 participants were analyzed using structural equation modeling (SEM) via Amos. The findings reveal that teacher creativity contributed significantly to improving the quality of education during the pandemic.

Based on the above analyses, it is evident that teachers' creative competence has drawn substantial interest from scholars due to its relevance, significance, and profound value in professional teaching practice. Creative competence is

regarded as a foundational element that enables teachers to overcome challenges, fulfill their instructional and educational responsibilities effectively, enhance their professional growth, and ultimately contribute to improving the quality of education in schools.

4.3 Countries Conducting Research on Teachers' Creative Competence

Figure 4 displays data on the countries in which the 30 selected articles were published.

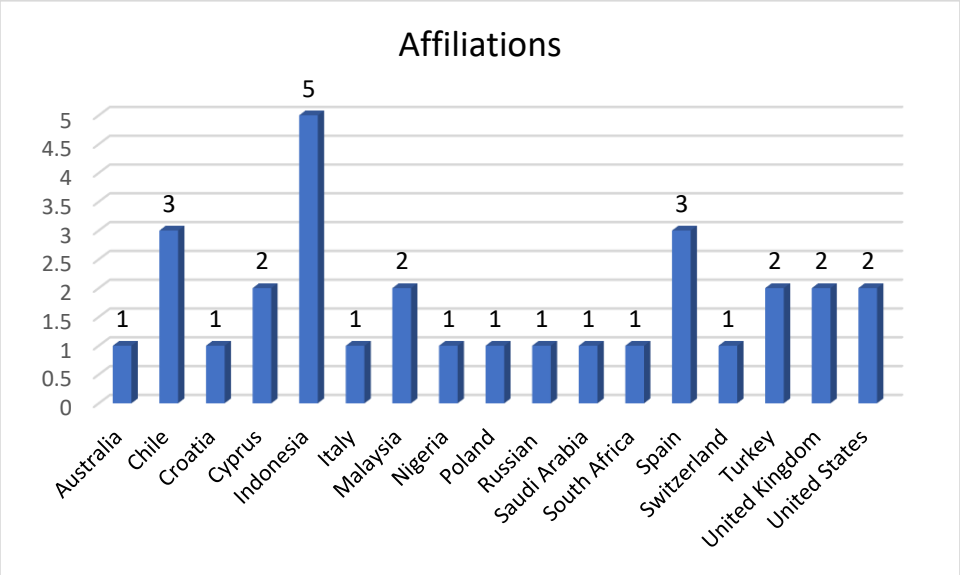

Figure 4: Distribution of studies on teachers' creative competence according to country

As illustrated in Figure 4, among the thirty selected articles related to teachers' creative competence, Indonesia is the leading contributor, with five publications. Chile and Spain follow, each contributing three articles. Cyprus, Malaysia, Turkey, the United Kingdom, and the United States rank third, with two publications each. The remaining countries contributed one article each to the field. This information offers valuable insights for researchers, educational administrators, and teachers. It underscores the growing recognition of the importance of teachers' creative competence in professional practice and provides a foundation for identifying strategies to further develop this competence, thereby enhancing overall teacher quality.

4.4 Recent Research Trends on Teachers' Creative Competence

Table 2 presents recent research trends on teachers' creative competence, based on the selected studies analyzed in this review. Some of the studies paid significant attention to the relationship between innovative behavior, teaching practices, and teachers' creativity. Notable examples include the works of Abdullah et al. (2021), Sali and Özbay Özdemir (2023), and Widodo and Gustari (2020). These studies primarily explored the link between practical competence and creativity, offering empirical assessments of teachers' creative capacities and noting variations between teachers in different contexts (e.g., rural vs. urban environments).

In early childhood education, creativity may be expressed through hands-on activities such as drawing, reflecting practical-idea implementation. Creativity is also manifested through innovative behavior influenced by knowledge management. In other words, the interaction between knowledge management and creativity plays a vital role in shaping teachers' innovative practices, highlighting practical implications for future models of innovative behavior in diverse educational settings.

Table 2: Prior issues investigated by scholars

Research trends	**Studies**
Relationship between innovative behavior, teaching practices, and teachers' creativity	Abdullah et al. (2021), Sali and Özbay Özdemir (2023), Widodo and Gustari (2020)
Factors influencing teachers' creativity	Ahmad et al. (2023), Benić (2021), Cropley et al. (2019), Ramdani et al. (2022), Xu and Sheng (2024)
Approaches to fostering teachers' creativity	Ambarwati et al. (2023), Morris (2020), Nja et al. (2022)
Impact of the COVID-19 pandemic on teachers' creative capacity	Al-khresheh (2022), Anderson et al. (2022), Tamsah et al. (2021)
Importance of creativity in teachers' professional activities	de la Peña Álvarez (2019), Michaelidou and Pitri (2022), Rybkin and Grebennikova (2019), Troncoso et al. (2022)
Indicators of creativity in educational contexts	Calavia et al. (2021), Emine (2024), Massie et al. (2022), Ubah and Ogbonnaya (2021), Uszyńska-Jarmoc and Kunat (2020)
Intersection of technology and creativity in teaching	Chen et al. (2023), Dewi (2019), Kizilay et al. (2023)
How teachers' creativity influences students' creative development	Sánchez et al. (2022), Zha and Greenier (2023)
Research on creativity among music and art teachers	Schiavio et al. (2023), Swanzy-Impraim et al. (2023a)

In addition, some of the selected studies identified a range of factors influencing teachers' creativity. This includes the organizational environment and working conditions (Ahmad et al., 2023), personal beliefs (Benić, 2021; Cropley et al., 2019), curiosity, inquisitiveness, individual attitudes (Ramdani et al., 2022), critical thinking, and technological tools (Xu & Sheng, 2024).

Some studies also examined methods for enhancing teachers' creativity. These include experiential learning at museums, where designing instructional strategies aligned with curricula and providing appropriate infrastructure are seen as effective means to foster creativity in teaching (Ambarwati et al., 2023). Self-directed learning is also regarded as a foundational and effective approach to

nurturing teachers' creativity (Morris, 2020). Furthermore, the application of effective teaching methodologies has proven to be another important avenue for enhancing creative potential (Nja et al., 2022).

A considerable number of scholars investigated the impact of the COVID-19 pandemic on teachers' creative capacity. These studies highlight how teachers adapted and remained creative despite the challenges of the pandemic, particularly in achieving instructional goals in virtual classrooms (Al-khresheh, 2022). Professional development models emphasizing creativity—through experiences of empathy, joy, and enthusiasm—were found to support teachers' well-being and creative expression during the pandemic (Anderson et al., 2022). Other studies affirmed that creativity significantly contributed to improving teaching quality during the COVID-19 pandemic (Tamsah et al., 2021).

There is also a strong body of literature affirming the importance of creativity in teachers' professional practice. Creativity is shown to enhance pre-service teachers' academic performance (de la Peña Álvarez, 2019), support ongoing professional development (Michaelidou & Pitri, 2022), and serve as a core quality contributing to teachers' competitiveness (Rybkin & Grebennikova, 2019) and as a key driver for educational innovation (Troncoso et al., 2022).

From a different analytical angle, some of the researchers also sought to define and categorize indicators of creativity. Some proposed fifteen creativity indicators (Calavia et al., 2021), while others examined varying degrees of creativity based on personality traits and professional domains (Emine, 2024) and identified three core creative components (Ubah & Ogbonnaya, 2021). Furthermore, others presented diverse definitions of creativity—including self-expression, innovation, imaginative and critical thinking, and everyday problem-solving abilities (Uszyńska-Jarmoc & Kunat, 2020). Some scholars even explored the relationship between creativity and risk-taking in professional contexts (Massie et al., 2022).

Another prominent research trend involves the intersection of technology and creativity. Teachers are increasingly seen as designers of technology-enhanced learning methods that drive innovation. Multimedia teaching has been shown to significantly enhance creative lesson planning and delivery, and technology is regarded as a key factor in developing teachers' critical and creative thinking (Chen et al., 2023; Dewi, 2019; Kizilay et al., 2023).

Furthermore, some researchers investigated how teachers' creativity influences students' creativity. There is consensus that the use of creative tools and methods by teachers positively impacts students' creative capacity. Teachers' perceptions, beliefs, and guidance related to creativity have been found to help students perform tasks more effectively and creatively (Sánchez et al., 2022; Zha & Greenier, 2023).

In the arts domain – where creativity is a fundamental requirement – many of the scholars explored creativity among music and art teachers. Research suggests a close relationship between the creative environment and teachers' artistic

expression, which in turn nurtures student creativity. However, both individual and collective teaching approaches may face limitations when creativity is placed at the core of instruction (Schiavio et al., 2023). Consequently, creativity is considered essential in both the training and professional activities of arts educators (Swanzy-Impraim et al., 2023).

4.5 Recent Themes and Their Relationship to Creative Competence

Figure 5, generated using VOSviewer software, provides a visual keyword representation of research on teachers' creative competence from 2019 to 2024. The diagram reveals six major clusters, each representing a core theme related to different aspects of the research domain. These clusters were identified based on the co-occurrence of keywords, which reflect thematic connections across various studies. In this analysis, we used keywords as the primary items to detect and define the clusters.

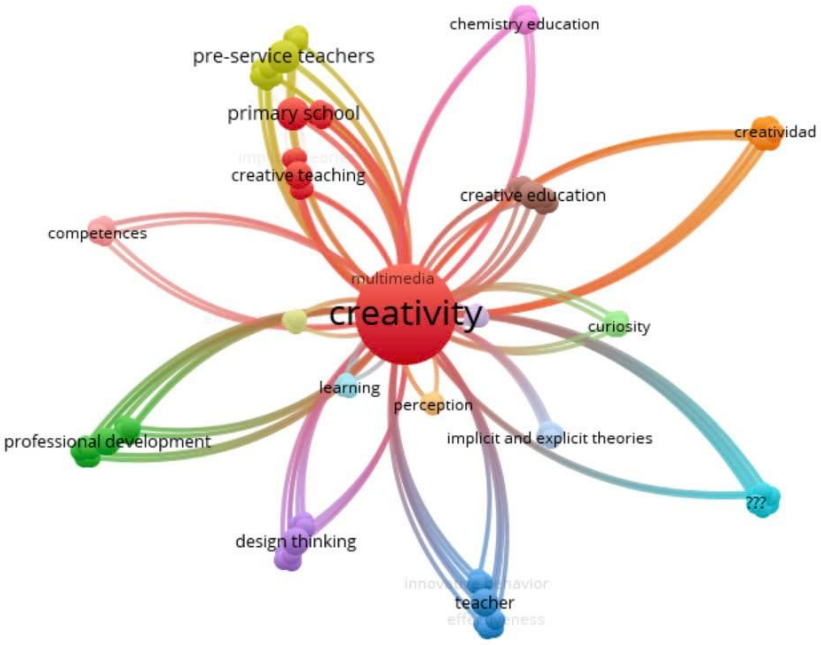

Figure 5: Network of keywords pertaining to teachers' creativity professional learning communities

The first cluster (coded in red) is the largest and most prominent. It represents the central relationship among keywords, with "creativity" as the core term, indicating that the research primarily focuses on the exploration of creativity. Studies on creativity in education emphasize its importance throughout the learning process and the professional development of teachers. Creativity influences all levels of education—from early childhood and primary school to teacher training institutions and universities. Teachers' creativity also positively impacts students' creativity in the classroom.

This cluster highlights a strong connection between creativity and cognitive qualities, particularly critical thinking and idea design, which are regarded as

fundamental components of creative competence. Research has also identified factors that promote teachers' creativity, such as leadership support, organizational environment, teachers' perceptions and beliefs, and even student influence. On the other hand, barriers to creativity—such as inadequate infrastructure, lack of professional motivation, or limited technological proficiency—are also analyzed. Overall, creative competence is recognized as a core capability that enables teachers to excel in their professional roles and achieve high performance in their work.

The second cluster (coded in yellow) focuses primarily on the expression of creative competence across specific educational levels, such as preschool, primary school, and among pre-service teachers. In this cluster, *creative pedagogy* emerged as a key element of teachers' creativity. Central keywords include "pre-service teachers", "primary school", and "creative pedagogy".

The third cluster (coded in green) centers on the relationship between creativity and professional development. This group reveals a strong, mutually reinforcing link between creative competence and teachers' professional growth. Creative teachers tend to exhibit flexible thinking, develop original lesson plans, apply effective teaching strategies, and engage in meaningful educational research. In turn, teachers' professional expertise is continuously enhanced and deepened through creative engagement in learning, research, and teaching.

The fourth cluster (coded in purple) focuses on the relationship between creativity, thinking ability, and idea design. This cluster introduces compelling insights into how creativity is connected to the capacity for generating novel ideas. "Design thinking" appears as a core criterion of creativity. Critical thinking is highlighted as a unique pathway through which teachers can devise alternative approaches to achieve educational goals.

The fifth cluster (coded in brown) encompasses diverse aspects of creative education, considering it from multiple perspectives—including content, methodology, instructional format, and the roles of teachers, students, leaders, and educational researchers. Key areas of interest include teachers' perceptions of creativity, creative teaching practices in English language instruction, pedagogical conditions that foster creativity among pre-service teachers, factors influencing student creativity, and the creative demands of online education. The term *creative education* underscores the comprehensive relationship between creativity and education, linking it to all stages of the educational process (content, methods, organization, assessment) and all stakeholders (teachers and learners).

Figure 6 displays a word cloud visualization that ranks keyword occurrences in descending order of frequency. Terms with higher frequencies are represented in larger font sizes, whereas those that occur less often appear in smaller sizes. This visual representation highlights that the most common keywords extracted from the 30 selected articles on teachers' creativity predominantly relate to professional practices and instructional processes. Notably, the word "creativity" emerged as

the most frequent term, appearing 27 times, followed by "teacher" and "education", each mentioned 10 times throughout the dataset.

These findings indicate significant scholarly interest in various aspects of teachers' creativity and reaffirm the critical role that creative competence plays in teachers' professional activities. Other frequently occurring keywords include "learning", "implicit", "design", "professional", and "methodology", suggesting their close association with the theme of creativity, either as contributing factors or as dimensions through which teachers' creativity is expressed in professional contexts.

Figure 6: Word cloud illustrating keywords drawn from the abstracts of the 30 included studies

5. Discussion

Several scholars have conducted studies on creativity and teachers' creative competence. Compared to our study, there are both similarities and differences. In terms of research methodology, our study aligns with the approaches used by Galea and Ramos (2023) and Han and Abdrahim (2023), who also employed the PRISMA framework for analysis. However, our research focus differed. While Galea and Ramos (2023) applied PRISMA to a broader set of databases (including WoS, Scopus, and ERIC) and concentrated solely on creativity in music education, Han and Abdrahim (2023) used PRISMA to review creativity in higher education contexts. Our study, by contrast, was limited to Scopus-indexed publications but addressed a broader scope—teachers' creativity in general across educational levels.

Regarding publication trends, our findings show fluctuations in article output between 2019 and 2024. A decline in publications during 2020 may be attributed to several factors, such as the impact of the COVID-19 pandemic or limited technological proficiency among teachers (Kartal, 2024). Nevertheless, overall trends suggest increasing scholarly interest in the topic, evidenced by the growing

number of publications—an observation that is consistent with findings reported by Galea and Ramos (2023). However, a key difference lies in the study periods: While Galea and Ramos (2023) examined publications over a ten-year span (2014−2023), our analysis focused on a five-year period (2019–2024), thus complementing and enriching prior research by providing a more recent snapshot. This supports previous assertions about the sustained scholarly interest in teacher creativity (Kharchenko et al., 2020; Tok, 2022).

As illustrated in Figure 3, *Frontiers in Education* was the leading journal in terms of the number of published articles on teachers' creativity. This concentration may be explained by the journal's quality (as indexed in Scopus) and its role as an international platform for academic discourse on research-based educational practices, which has attracted contributions from numerous researchers. However, the most highly cited articles were published in *Thinking Skills and Creativity* and the *International Journal of Lifelong Education*. This may be due to the high H-index values of these journals (66 and 54, respectively) and their strong influence within the academic community. These patterns were not identified in the studies by Galea and Ramos (2023) or Han and Abdrahim (2023).

Regarding research on teacher creativity, our findings are largely consistent with those of previous scholars. In particular, the study highlights how creative teaching methods (Abdullah et al., 2021) have been explored and implemented in instructional practices. Factors that either promote or hinder teacher creativity—such as work environment, personal traits, beliefs, the impact of the pandemic, technology use, pressure, and stress—have also been identified (Ahmad et al., 2023; Ata-Aktürk & Sevimli-Çelik, 2023; Calafato, 2024). Overall, while our study aligns with previous research in terms of methodology, the depth and focus of our investigation are distinct. This reflects both a continuation of prior work and a unique contribution in terms of how the issue is approached. Consequently, our study helps to address existing gaps in the literature on teachers' creative competence.

5.1 Theoretical Implications

The studies reviewed from 2019 to 2024 provide meaningful theoretical insights into the development of research on teachers' creativity. Our findings contribute to and enrich previous literature reviews (Galea & Ramos, 2023; Han & Abdrahim, 2023). The analysis of fluctuations in publication volume offers theoretical perspectives on the factors influencing these variations. The increasing trend in publications highlights the growing recognition of the importance of the topic and the sustained interest of scholars in exploring teachers' creativity. The fact that high-quality educational journals have increasingly attracted research on this subject emphasizes the significance of journal reputation in influencing authors' publication choices. These trends also offer useful guidance for future researchers, suggesting that theoretical frameworks should be carefully constructed to avoid redundancy and instead explore emerging and under-investigated aspects of the field.

5.2 Practical Implications

This study contributes to enhancing teachers' creative competence in the context of modern education, which is crucial for both professional development and the quality of teaching. By synthesizing research literature from the Scopus database, the study provides an overview of research trends, key journals, leading authors, and contributing countries in the field of teacher creativity. These findings not only help researchers identify gaps in the existing literature but also suggest new directions for future studies, thereby promoting the advancement of this research domain.

Moreover, the information generated from this review offers valuable insights for educational administrators and teacher training institutions. It emphasizes the importance of integrating creativity development into teacher education and professional development programs. This has practical implications for designing more effective training models, encouraging the adoption of innovative teaching methods, and ultimately improving student learning outcomes.

In addition, the study outlines various factors that influence teachers' creativity and proposes specific measures to support teachers in their instructional practices. These include improving the working environment, providing access to technological tools, and creating favorable conditions for implementing innovative teaching strategies. In summary, this research not only makes theoretical contributions but also offers actionable solutions aimed at enhancing educational quality in schools.

5.3 Limitations of the Current Study

This study has several limitations that should be acknowledged. First, the exclusive use of data from the Scopus database may have restricted the scope of the analysis, as it excludes potentially valuable literature from other sources, such as Web of Science or Google Scholar. Second, the inclusion criteria based on publication year and language may have resulted in the omission of significant studies published prior to the selected timeframe or in other languages. Furthermore, although this study identified several major themes, it did not perform an in-depth analysis of cultural factors and local educational contexts. This limitation may affect the generalizability of the findings across different educational systems and geographic regions.

6. Conclusion and Implications

This study provides a comprehensive overview of teachers' creative competence, based on studies from the Scopus database covering the period 2019–2024. The findings indicate a significant increase in the number of research publications on this topic and identify the key journals, authors, and countries contributing prominently to the field. These results not only reaffirm the importance of creative competence in education but also highlight the challenges teachers face in fostering and applying this competence.

Looking ahead, future research should expand to include other databases to gain a more holistic understanding of teachers' creativity on a global scale. In addition,

further investigations into cultural factors, local contexts, and specific instructional practices would enhance the generalizability and practical relevance of the findings. Future studies should also prioritize the development of teacher training and professional development programs aimed at strengthening creative competence, thereby contributing to improved educational quality amid the continuous evolution of modern society.

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