

## Original Paper

# Visualization Analysis of Research Hotspots and Trends of Teacher Emotional Intelligence by Citespace—Based on the Web of Science Core Collection (2014–2024)

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### **Abstract**

*This research employs CiteSpace 6.4 to analyze teacher emotional intelligence (TEI) trends in SSCI journals from 2014-2024. Bibliometric analysis reveals TEI publications experienced slow initial growth followed by fluctuating increases. Three dominant themes emerged: (1) validation of emotional intelligence measurement scales, (2) examination of TEI's relationship with teacher burnout and instructional effectiveness, and (3) development of theoretical models. Comparative analysis shows international studies emphasize TEI's role in technology integration and emotional regulation's impact on teaching outcomes, while domestic research primarily focuses on professional development and classroom management. The field has evolved from broad conceptual explorations to context-specific investigations, particularly regarding workplace factors and teaching environments. However, domestic research exhibits slower progress in adopting technological perspectives compared to international scholarship. The findings suggest future studies should: (1) strengthen interdisciplinary approaches combining psychology and education technology, (2) investigate individual differences in TEI development, and (3) explore TEI's applications in digital learning environments. This systematic review provides valuable insights for researchers and policymakers seeking to enhance teacher development programs through emotional intelligence frameworks.*

### **Keywords**

*emotional intelligence, teacher emotions, bibliometric analysis, educational psychology*

## **1. Introduction**

The concept of emotional intelligence (EI), popularized by Goleman (1998), refers to the ability to recognize, understand, manage, and influence one's own and others' emotions. In the field of education,

teachers' emotional intelligence has profound implications for teaching effectiveness and student development, serving as a critical factor influencing instructional quality, teacher-student relationships, and learning outcomes (Hargreaves, 1998). Teachers are not only responsible for knowledge transmission but also for managing emotional dynamics in the classroom and addressing various pedagogical challenges, where emotional intelligence plays an indispensable role.

Although EI has not traditionally been part of formal teacher education curricula, growing recognition of its role in academic and life success—particularly its correlation with student development in areas such as academic achievement, social competence, and mental well-being (Zeidner, Matthews, & Roberts, 2012)—has established EI as a focal point in psychological and educational research. In recent years, with the rise of positive psychology, EI has garnered increasing scholarly attention as a key factor in enhancing subjective well-being and mental health. In teacher education, emotional intelligence not only influences educators' self-efficacy, psychological health, and job satisfaction but also positively impacts students' socio-emotional development and academic performance.

Over the past decade (2014–2024), significant changes in educational environments—such as the proliferation of digital teaching and evolving pedagogical philosophies—have driven continuous advancements in research on teachers' emotional intelligence. However, domestic studies on this topic remain relatively scarce. A CNKI search using “teacher emotional intelligence” as the keyword yields only 94 publications, with merely 21 classified as CSSCI sources. Only one systematic review exists (Luo & Sui, 2017), in stark contrast to the abundant international literature, particularly in SSCI journals, where multifaceted explorations of teacher EI are prevalent. Furthermore, existing research is fragmented, lacking comprehensive synthesis. Thus, this study employs CiteSpace to conduct a systematic review and knowledge-mapping visualization analysis of SSCI-indexed teacher EI research from 2014–2024, aiming to contribute to the development of domestic scholarship in this field.

## **2. Methodology**

### *2.1 Data Sources*

The data for this study primarily come from SSCI journals in the Web of Science Core Collection database. The search terms include “teacher emotional intelligence,” “emotional intelligence of educators,” and “teacher EI,” with the search scope limited to the topic field. The literature type is restricted to research articles and reviews, and only English-language publications are included. The publication period spans from January 2014 to January 2025, yielding an initial pool of 589 publications. To ensure accuracy, a manual screening process is conducted based on titles, abstracts, and keywords, excluding irrelevant studies that do not focus on teachers' emotional intelligence in educational contexts. This process results in a final dataset of 190 English-language articles. Key information such as authors, titles, abstracts, keywords, and references is exported in .txt format, with data type set to “full record and cited references” for analysis.

## 2.2 Research Methods

This study employs bibliometric analysis and keyword co-occurrence methods, utilizing CiteSpace 6.4 as the primary analytical tool. Knowledge graph visualization technology integrates large-scale literature data to visually present the developmental trajectory, research hotspots, and emerging trends in a given field (Chen, 2006). First, bibliometric analysis is applied to examine publication trends and trace the evolution of the research domain. Second, keyword co-occurrence networks are constructed to identify current research hotspots and frontier issues.

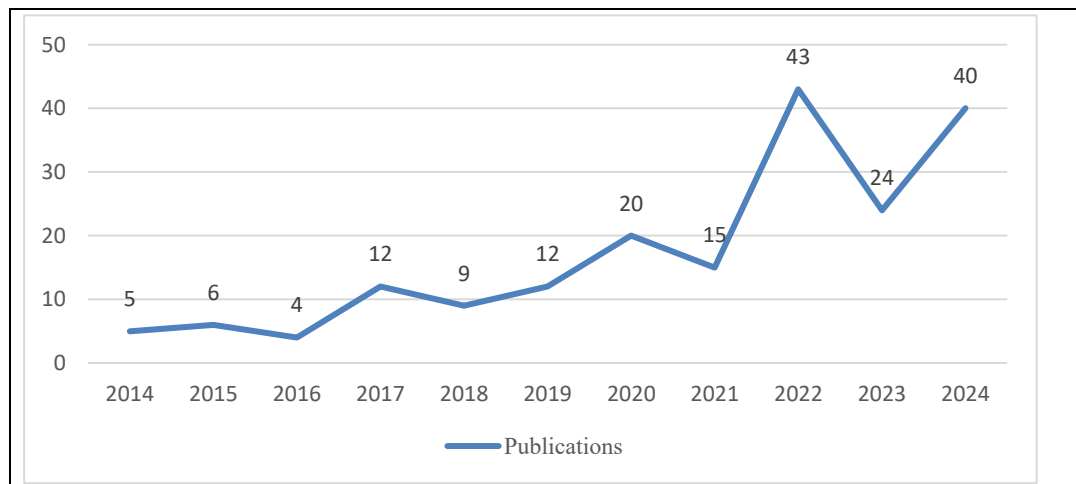
## 3. Results

### 3.1 Research Outputs

The annual publication output of international research on teacher emotional intelligence (TEI) demonstrates a fluctuating yet overall upward trend from 2014 to 2024 (see Figure 1). The development can be categorized into two distinct phases: the initial exploration phase (2014-2018) and the fluctuating growth phase (2019-2024).

During the initial exploration phase, as requirements for teachers' comprehensive competencies gradually increased, TEI began attracting academic attention. However, research remained in its preliminary stages, with limited annual publications showing slow growth - increasing from merely 5 papers in 2014 to 9 in 2018.

The subsequent phase witnessed more dynamic development. With advancements in educational psychology and deeper understanding of teacher-student interactions, TEI research gained significant momentum. Although publication numbers fluctuated between 2019 and 2021, they peaked at 43 papers in 2022. The subsequent decline in 2023 may reflect the emergence of competing educational research topics that diverted scholarly attention and resources. Notably, publications rebounded to 40 in 2024, indicating sustained interest in this field. This suggests that international scholars have developed a more profound recognition of TEI's significance in educational practice, while simultaneously reflecting the evolving nature of educational research priorities. The fluctuations particularly in 2022-2024 may signify both the maturation of TEI research and its interaction with emerging educational paradigms.



**Figure 1. Publications from 2014-2024**

### 3.2 Highly Cited Publications

Highly cited publications are generally recognized as seminal works that exert significant influence in a particular research domain. Based on Figure 2, the top seven most cited publications in this field can be identified and ranked

Merida (2017) conducted a systematic review of empirical studies examining the relationship between emotional intelligence and teacher burnout, demonstrating a significant negative correlation between these constructs. The study identified multiple intervention mechanisms and proposed valuable directions for future research and practical applications. Mayer and Salovey (2016) presented seven fundamental principles of the ability model of emotional intelligence, refining the four-branch model and examining its connections with other “hot” intelligences, thereby providing substantial theoretical foundations for both research and practice in emotional intelligence.

Pacheco and Sánchez (2019) validated the psychometric properties of the Spanish adaptation of the Wong Law Emotional Intelligence Scale (WLEIS-S) in an adult population, confirming its robust internal consistency, criterion validity, and four-factor structure. Their finding that women scored higher in overall emotional intelligence and particularly in the emotional appraisal of others dimension offers important implications for gender-related studies in teacher emotional intelligence. Pozo’s (2020) experimental study on emotional intelligence training for elementary school teachers demonstrated that both traditional face-to-face instruction and innovative game-based e-learning approaches effectively enhanced student academic achievement, with the latter showing superior outcomes and higher teacher satisfaction levels.

Bakker and Demerouti (2017) provided a comprehensive review of the Job Demands-Resources (JD-R) model’s evolution, tracing its development from a conceptual framework to an established theory. Their work highlighted unresolved issues, proposed future research directions, and discussed practical applications. Valente and Cristóvão (2020) revealed significant positive correlations between Portuguese teachers’ emotional intelligence competencies and their teaching efficacy beliefs, while also identifying

associations with gender, teaching experience, and academic background - findings that strongly support the integration of emotional education in teacher training programs. Wu, Lian et al. (2019) investigated the relationship between teachers' emotional intelligence and self-efficacy, establishing that teaching performance partially mediates this relationship, with the mediating effect demonstrating consistency across different genders and varying levels of teaching experience.

These highly influential publications collectively address several critical aspects of emotional intelligence research, including: (1) validation of measurement instruments; (2) examination of relationships between teacher emotional intelligence and professional outcomes (burnout and teaching efficacy); (3) theoretical model development and refinement; (4) advancement of the Job Demands-Resources framework. Together, they constitute a robust theoretical foundation and provide valuable practical guidance for both research and application in the field of teacher emotional intelligence.

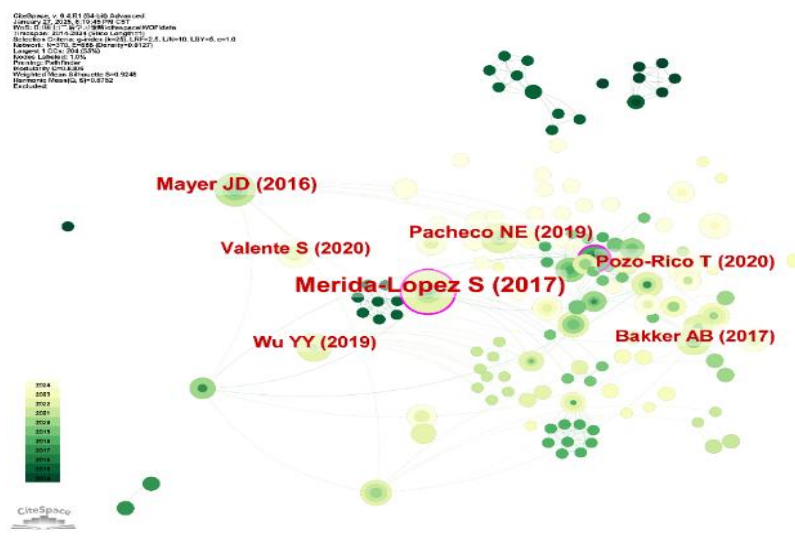


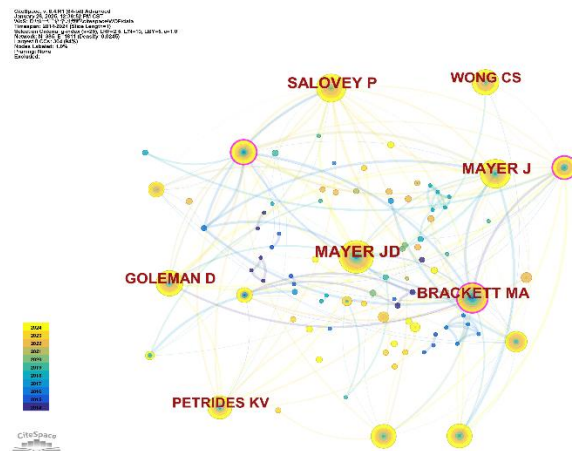
Figure 2. Highly Cited Publications

### 3.3 Author Analysis

The co-citation network visualization reveals scholarly relationships within this research domain, where node size corresponds to the author's academic influence.

#### (1) Highly Cited Authors

Analysis of the author co-citation network (Figure 3) identifies the top seven most influential scholars in this field. Mayer J.D. emerges as the most prolific contributor with 84 relevant publications, followed closely by Mayer J. (64 publications) and Salovey P. (63 publications). Other notable scholars include Brackett M.A. (61 publications), Goleman D. (51 publications), Wang C.S. (48 publications), and Petrides K.V. (45 publications). These authors demonstrate substantial impact in teacher emotional intelligence research through their extensive publication records.



**Figure 3. Highly Cited Authors**

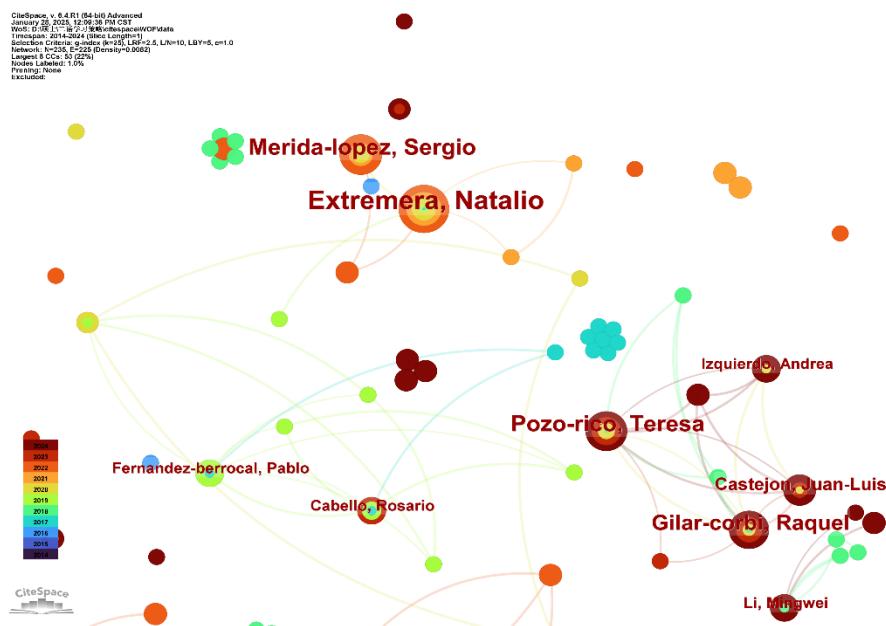
## (2) Collaborative Authors

Figure 4 presents the collaborative relationships among researchers in the field of teacher emotional intelligence. Each node in the diagram represents an author, while connecting lines indicate co-authorship relationships. The visualization reveals a relatively complex collaboration network with multiple research clusters and intersecting points.

Merida-Lopez, Sergio, Extremera, Natalio, and Izquierdo occupy central positions in the network with multiple connecting lines, demonstrating their substantial influence and extensive collaborative relationships within the field. While not positioned at the very center, authors such as Teresa, Fernandez-Berrocal, and Pablo also play significant roles in the collaboration network, maintaining cooperative ties with numerous scholars.

The connecting lines explicitly illustrate direct co-authorship: Merida-Lopez collaborates with Sergio and Extremera, while Pablo works with Castejón and Juan-Luis. Notably, the color gradient of network connections suggests that 2022-2024 marked a period of particularly active collaboration, aligning with the publication trends shown in Figure 1. This temporal pattern indicates growing scholarly attention to the field and an emphasis on collaborative research.

The network also contains relatively isolated nodes (e.g., Gilar-Corbi, Raquel), which may reflect either limited collaboration or under-documented cooperative relationships in the current literature.



### Figure 4. Collaborative Authours

### 3.4 Research Hotspot Analysis

Figure 5 presents a detailed visualization of the conceptual relationships within teacher emotional intelligence (TEI) research. Key words including “job satisfaction,” “ability,” “performance,” “personality,” and “classroom” demonstrate both the depth and breadth of this research domain.

The strong connection between “satisfaction” and “job satisfaction” underscores the critical role of teachers’ psychological well-being in their overall professional fulfillment. Emotional intelligence emerges as a pivotal factor in teacher development, with research indicating that teachers possessing higher emotional intelligence demonstrate greater adaptability to evolving educational environments and actively pursue professional growth opportunities (Petrides & Furnham, 2003).

The central positioning of “emotional intelligence” reveals its robust connections with “ability,” “performance,” and “personality,” highlighting its dual significance in both professional competence and personal attributes. Furthermore, the multiple linkages between TEI and “classroom” emphasize the environmental dimension, as emotionally intelligent teachers create more supportive learning atmospheres that enhance student motivation and creativity (Diefendorff et al., 2004).

Notably, the appearance of “self-efficacy” reflects important empirical findings. Zeidner et al. (2005) established a significant positive correlation between emotional intelligence and teacher efficacy, demonstrating that emotionally intelligent educators manage challenges more effectively, thereby improving instructional quality and student outcomes. Wu and Lian et al. (2019) further revealed that while TEI directly relates to teacher self-efficacy, it also indirectly influences teaching performance, which serves as a significant mediator in this relationship.

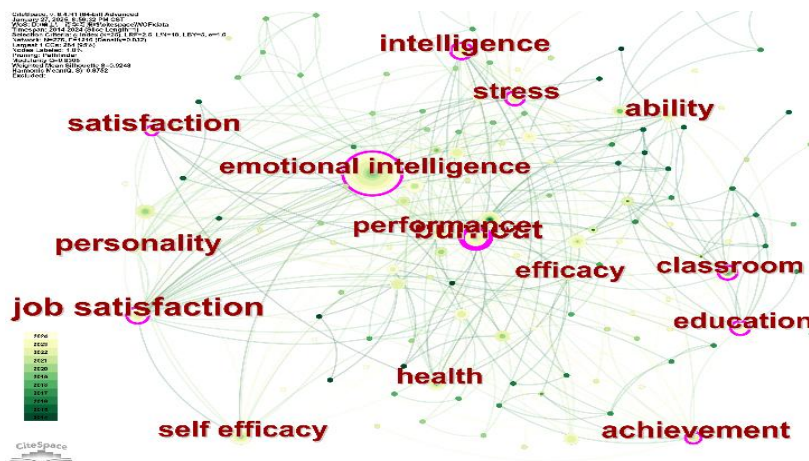


Figure 5. Keywords Map

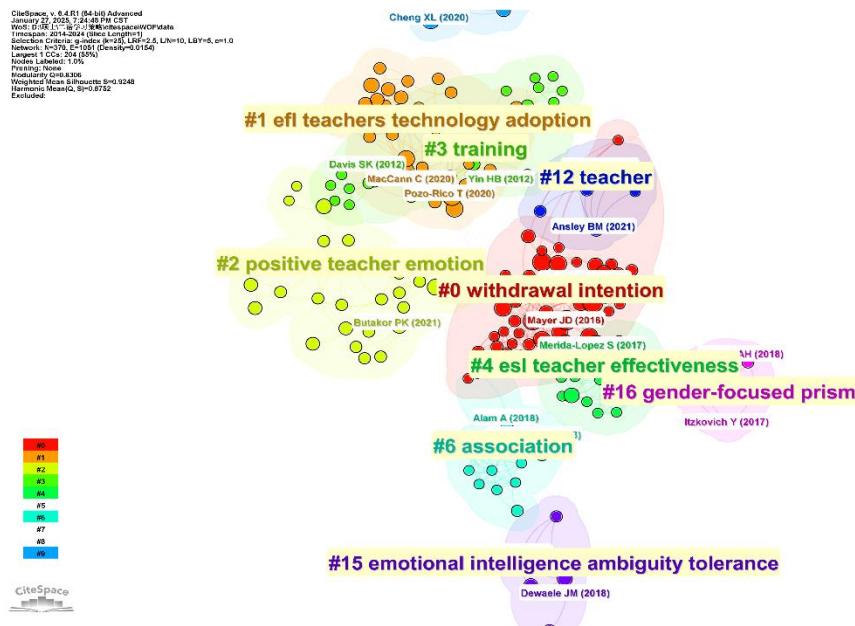
Figure 6 presents a clustered knowledge graph of keywords in this research field, revealing multiple interconnected core themes and demonstrating substantial scholarly exploration of teacher emotional intelligence (TEI) internationally. Following the clustering principle where earlier cluster numbers indicate larger research volumes (Yang Lifang, 2022), three primary international research themes can be identified:

- (1). EFL Teacher Technology Adoption: Scholars like MacCann et al. (2020) have investigated the relationship between emotional intelligence and teachers' technology adoption, highlighting TEI's positive role in facilitating educational technology integration and implementation.
- (2). Positive Teacher Emotion: Research by Pozo-Rico et al. (2020) and Ansley et al. (2021) focuses on how teachers' (#12 teacher) emotional states affect instructional outcomes, particularly the impact of positive emotions on enhancing teaching efficacy and student satisfaction.
- (3). Training: Davis (2012) emphasizes the crucial role of teacher training in developing emotional intelligence, demonstrating how effective programs enhance educators' emotional management capabilities. Mayer (2016) and Mérida-López (2017) further analyze how specific TEI components (e.g., emotion recognition, utilization) influence professional growth and teaching performance.

Additional significant findings include: (1) The TEI-ambiguity tolerance relationship (#15). Dewaele et al. (2018) show that higher-TEI teachers better navigate pedagogical uncertainties, demonstrating greater adaptability and innovation. (2) Gender perspectives (#16). Studies by Alam (2018) and Itzkovich (2017) reveal complex gender differences in TEI development, expression, and instructional impacts.

This multidimensional, interdisciplinary field encompasses teacher training, technology adoption, emotional states, ambiguity tolerance, and gender perspectives. These investigations not only deepen theoretical understanding of TEI but also provide valuable evidence-based guidance for educational practice.





### Figure 6. Key Words Clusters

## 4. Research Prospects

The timeline knowledge graph of TEI research keywords (2014-2024, Figure 5) reveals three evolutionary phases:

- (1) Initial Phase (2014-2017): Keywords like “teacher education” and “beginning teachers” indicate foundational research focusing on educators as a general population and their macro-level connections with education, representing preliminary conceptual exploration.
- (2) Developmental Phase (2017-2018): Emerging terms such as “higher education” and “classroom” reflect a shift toward specific educational contexts, demonstrating narrowed yet deeper investigations into TEI’s manifestations in particular teaching environments.
- (3) Mature Phase (2018-2024): Later keywords including “job satisfaction” and “emotional labor” reveal expanded research dimensions, examining TEI’s relationships with occupational factors like emotional management and professional experiences.

This temporal progression demonstrates two key trends:

- (1) From broad to specific: Evolving from general educational connections to contextualized classroom applications and finally workplace behaviors.
- (2) From singular to multidimensional: Transitioning from isolated TEI examination to integrated analyses incorporating job satisfaction, social support, etc.

Based on current hotspots and trend analysis, three future directions can be proposed:

- (1) Interdisciplinary integration: Incorporating psychological, sociological, and managerial theories/methods to comprehensively understand TEI's mechanisms.
- (2) Individual differences: Investigating how regional, disciplinary, and career-stage factors influence TEI for targeted teacher development.

- (3) EdTech integration: Exploring TEI in digital environments, including how online pedagogy and AI tools can enhance teachers' emotional capabilities.

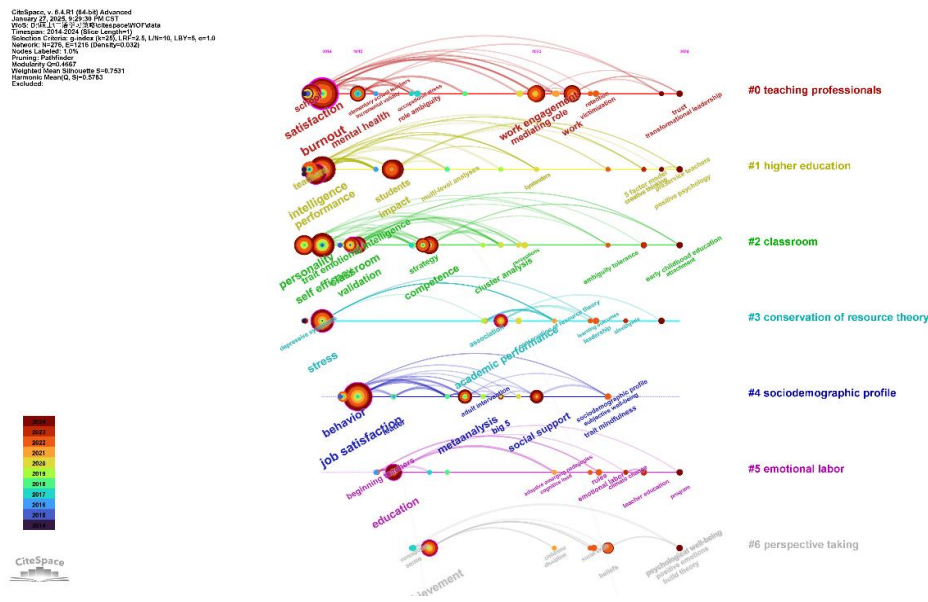


Figure 5. Timeline of Research Keywords

## 5. Conclusions

This study systematically analyzes research hotspots and trends in teacher emotional intelligence (TEI) through bibliometric methods, keyword co-occurrence analysis, and Citespace visualization, based on SSCI-indexed publications from 2014 to 2024. The findings reveal that TEI research has experienced fluctuating but overall growth over the past decade, progressing through two distinct phases: an initial slow development stage followed by a period of intermittent advancement. As educational psychology and related fields have evolved, and as expectations for teachers' comprehensive competencies have increased, TEI has gained significant scholarly attention, emerging as a critical topic in educational and psychological research.

Key research hotspots include: (1) The relationships between TEI and factors such as teacher burnout, teaching efficacy, and job satisfaction. (2) The validation of emotional intelligence measurement scales. (3) The development and refinement of theoretical models.

Additionally, studies have increasingly focused on TEI's manifestations in specific educational contexts (e.g., higher education, classroom environments) and its connections to individual differences like gender and teaching experience.

Author analysis highlights the substantial influence of scholars such as Mayer J.D., while co-authorship networks demonstrate complex collaborative patterns, with certain researchers occupying central positions and particularly active collaboration occurring between 2022 and 2024.

In the Future, TEI research could enhance interdisciplinary integration by incorporating theories and methods from psychology, sociology, and management to better understand TEI's mechanisms; address individual differences by examining how factors like region, subject area, and career stage influence TEI, enabling more tailored professional development; explore educational technology integration by investigating TEI in digital learning environments and the potential of online tools to enhance teachers' emotional capabilities.

In summary, this study provides valuable insights into TEI research through comprehensive literature review and visualization analysis. Future studies should continue expanding perspectives and deepening investigations to further advance both TEI scholarship and practice.

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