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A Bibliometric Analysis of Knowledge Development and Emerging Trends of Critical Thinking in English Education (1995-2024)

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Despite the growing emphasis on Critical Thinking (CT) in English education, there remains a lack of comprehensive understanding regarding its development and emerging trends over time. This study aims to bridge this gap by conducting a bibliometric analysis (BA) to map the knowledge development and emerging trends, identify influential contributors, and highlight emerging trends in CT research within the context of English education. A total of 878 articles were retrieved from the Web of Science core collection database from 1995 to 2024. VOSviewer and CiteSpace were employed as analytical instruments. The data collection process involved extracting publication metadata including authorship, institutional affiliations, keywords, citations, and country of origin. The analysis reveals that Hwang Gwo-jen, Stapleton Paul, and Yuan Rui are the most frequently cited authors, while institutions such as The Chinese University of Hong Kong, The University of Hong Kong, and Islamic Azad University have made substantial contributions. China, the United States, and Iran emerged as the leading countries in this research area. Major research themes include higher education, academic writing, 21st-century skills, teacher education, CT, and teacher-student interaction. Additionally, emerging topics such as media education, information literacy, ChatGPT, digital games, educational technology, collaborative learning, and reading comprehension are gaining traction. These findings provide a comprehensive overview of the research landscape and suggest future directions for scholars and educators aiming to integrate CT into English education through innovative and technology-enhanced pedagogies.

Keywords: critical thinking, English education, visualization, bibliometric analysis, EFL

INTRODUCTION

Critical Thinking (CT) has emerged as a crucial educational objective in the 21st century, equipping learners with the ability to analyze information, evaluate arguments,

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and solve problems effectively. In the field of English education, the integration of CT is particularly significant due to the discipline's inherent emphasis on language use, communication, and cultural understanding. English education offers a dynamic platform for cultivating CT skills through fundamental activities such as reading, writing, speaking, and listening (Erdoğan, 2019). For instance, reading comprehension tasks encourage learners to evaluate themes, detect biases, and interpret nuanced meanings. Writing and argument construction challenge students to synthesize information, present coherent viewpoints, and support claims with logical reasoning (Liang & Fung, 2021). Similarly, engaging in meaningful discussions fosters the ability to consider diverse perspectives, question assumptions, and refine their own viewpoints (Yuan et al., 2022). Thus, In the domain of English education, CT holds particular importance role.

Despite the clear potential for promoting CT in English education, its implementation faces considerable obstacles. These include the absence of explicit instructional frameworks, insufficient teacher training in CT-oriented pedagogy, and time constraints within overcrowded curricula (Erdoğan, 2019; Liang & Fung, 2021; Mogea, 2022; Yuan et al., 2022). As a result, many English educators struggle to embed CT effectively into their teaching practices.

To address these challenges and provide a clearer understanding of how CT has been conceptualized, developed, and applied in the context of English education, this review critically examines the existing literature on CT in English education through Bibliometric Analysis (BA). Drawing on data from the Web of Science database and utilizing visualization tools such as VOSviewer and CiteSpace, the study provides macro-level insights into research trends and knowledge developments. By mapping the intellectual landscape of CT research within English education, this review aims to deepen understanding of current influential authors, organizations and countries, identify leading research hotspots and emerging trends, and offer practical implications for educators, policymakers, and scholars working to enhance CT integration in English language teaching.

In this study, Paul and Elder's framework (2019) offers a widely recognized structure for defining and cultivating critical thinking. According to their model, CT is the art of analyzing and evaluating thinking with a view to improving it. The framework emphasizes the interrelationship between elements of thought (such as purpose, question, assumptions, and implications) and intellectual standards (such as clarity, accuracy, relevance, logic, and fairness). In the context of English education, this model provides a lens for understanding how learners engage with texts, construct arguments, and reflect on language use with intellectual rigor and self-regulation.

This study utilizes the Web of Science Core Collection database to review research related to "Critical Thinking in English education" to present a BA of this field. Based on the research objectives, there are two research questions as follows:

1) What authors, organizations and countries are most actively involved in Critical Thinking (CT) Research of English Education?

2) What are the leading research hotspots and emerging trends of Critical Thinking (CT) in English Education?

METHOD

Research Design

To investigate the knowledge development and emerging trends in the field of Critical Thinking (CT) within English education, this study adopts Bibliometric Analysis (BA) as its primary methodological approach. It utilizes techniques such as citation analysis, keyword co-occurrence analysis, clustering, and timeline mapping to reveal research dynamics and evaluate academic influence (Sillet, 2013). Among these, knowledge graphs, a core component of scientometrics, serve as a key tool for visualizing intellectual structures and thematic evolution within the field (Öztürk et al., 2024).

Corpus

The corpus for this BA was retrieved from the Web of Science Core Collection, one of the most reputable and comprehensive academic databases for peer-reviewed literature. The term "Critical Thinking (CT)" retrieved data from Web of Science core collection and limited search results using the term "English education". Search queries downloaded from WoS database are as follows: (TITLE-ABS-KEY (English Teaching AND Critical Thinking) ANDPUBYEAR > January 1995 AND PUBYEAR < November 2024). Only articles written in English and classified as research articles, reviews, or proceedings papers were included. This selection strategy aimed to capture a broad yet focused set of scholarly works that reflect the development of CT research within the context of English education. The final dataset was exported in plain text format with full records for further analysis using VOSviewer and CiteSpace.

Instruments

VOSviewer is a specialized software tool designed for constructing and visualizing bibliometric networks (Arruda et al., 2022). It supports the analysis based on authors, organizations, countries, and keyword co-occurrence providing researchers with an intuitive way to analyze relationships and patterns in scientific literature (Wong, 2018). By generating detailed maps that display clusters and connections, VOSviewer helps uncover key authors, influential publications, hotspots and emerging research themes in the field of CT research within English Education.

CiteSpace is a powerful tool developed within the fields of scientometrics and data visualization, built on the Java programming language environment (Chen, 2014). It enables the visualization of the structure, patterns, and distribution of scientific knowledge (Wang & Lu, 2020). The resulting visualizations, known as scientific knowledge graphs, assist researchers in quickly identifying research hotspots, emerging trends, and developmental trajectories within CT research in English Education.

By combining these two tools, VOSviewer primarily focuses on keyword co-occurrence within a field of CT research within English Education, highlighting the main research themes, while CiteSpace specializes in cluster, timeline analysis, and burst term analysis, revealing the evolutionary trajectory and dynamic development of knowledge

within this field. Therefore, using both software tools allows for analysis from different dimensions and perspectives, leveraging their respective strengths to enhance the depth and breadth of bibliometric analysis.

Data Collection Procedure

Research data was downloaded from the core collection of the Web of Science database and structured data was exported, such as citation information including author name, article title, source title, publication year, number of citations, and DOI, as well as literature information covering affiliation, article language, publisher, editor, abstract, keywords, and funding details.

Data Analysis

In this review, a total of 878 articles on CT in English teaching were retrieved and analyzed as literature sources. In addition, the references were imported into VOSviewer and CiteSpace software for further analysis, with each tool focusing on distinct aspects of the bibliometric data. VOSviewer was utilized to conduct authors, organizations, countries and keyword co-occurrence analysis. While citation metrics provide a valuable indication of scholarly influence, they are not without limitations. High citation keywords counts do not always reflect the quality, originality, or educational relevance of a publication, as citation practices can be shaped by disciplinary norms, journal visibility, and language accessibility. Recognizing these limitations, this study adopts a more comprehensive analytical approach by combining citation analysis with keyword co-occurrence clustering, timeline maps and burst keywords by employing CiteSpace. This multi-dimensional strategy enables a deeper understanding of both the intellectual structure and thematic evolution of critical thinking research in English education, offering a more balanced assessment of academic impact beyond citation frequency alone.

FINDINGS

Overview of the Publication Trends

Changes in the number of publications are an important indicator of research progress in this field (Bukar et al., 2023). The distribution curve of publications is drawn according to the annual distribution of the number of publications, and only 11 months of data are available in 2024. Figure 1 shows the trend of changes in the number of publications on “Critical Thinking in English education” between 1995 and 2024. Through statistical analysis of the literature on Critical Thinking (CT) in English education in the past thirty years, the trend of changes in the number of publications is obviously increasing. Before 2014, the research in this field was still in the initial stage, and the number of papers was relatively small. Since 2014, the number of papers has gradually increased, and the research has entered a rapid development stage. From 2014 to 2017, the annual number of papers shows a significant upward trend. Despite a drop in 2018, there is another increase in 2019. In addition, the number of posts in 2020 was slightly lower than in 2019, but it grew rapidly between 2021 and 2022. Although the number of posts in 2023 was slightly lower than in 2022, 2024 was the peak in nearly three decades, with the number of posts exceeding 120 papers.

What Authors, Organizations and Countries are Most Actively Involved in Critical Thinking Research of English Education?

This part utilizes VOSviewer software to analyze key contributors to Critical Thinking (CT) research within the field of English education, focusing on authors, organizations, and countries actively involved in advancing this area of study during 1995 to 2024. To identify the current influential contributors in the field of CT in English education, this study analyzed the bibliometric data to extract information on authorship, institutional affiliations, and country of origin and then highlighted leading authorship, organizations and nations based on publication volume. These analyses provide insights into the major academic players driving research progress and facilitate understanding of global research distribution patterns within the domain.

The Most-Influential Authors

Through high-influential author analysis, core authors of a discipline or field can be identified (Lozano et al., 2019). Citation-based analysis is an important indicator for evaluating the impact of academic research (Aksnes et al., 2019). As shown in Figure 2, VOSviewer was used to analyze authors to identify high-citation authors with Critical Thinking (CT) in the field of English education. In the analysis process, citations were used as the core criterion to identify researchers with important academic impact in the field of CT in English education. Authors with high citations usually have a greater impact in academic circles, and their research results are widely cited and discussed, which reflects the recognition and dissemination of their academic contributions (Suban, 2023).

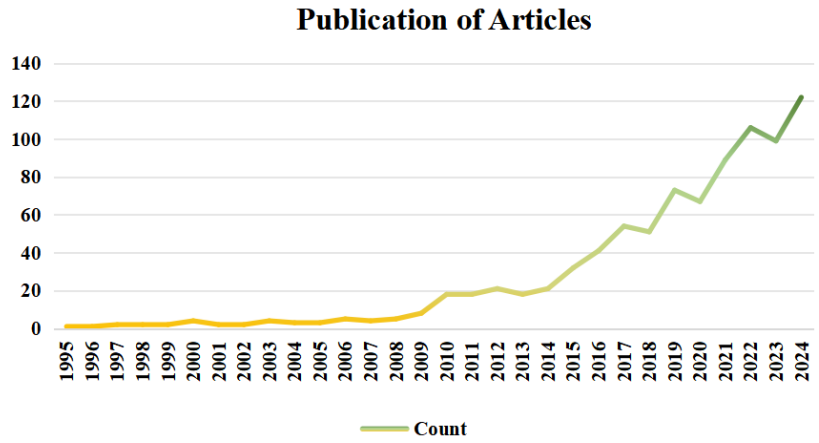

Figure 1
The overview of the publication trends

Figure 2 showed the top 10 authors with the largest number of articles, namely Hwang Gwo-jen's article was cited 210 times, Stapleton Paul's article was cited 96 times, Yuan Rui's article was cited 81 times, Heydarnejad Tahereh's article was cited 55 times, Zou

Di's article was cited 33 times, Belda-Medina Jose's article was cited 26 times, Xie Haoran's article was cited 17 times, Singh Micheal's article was cited 6 times, Khalili Tahmineh's article was cited 5 times and Hanjinghe's article was cited 2 times.

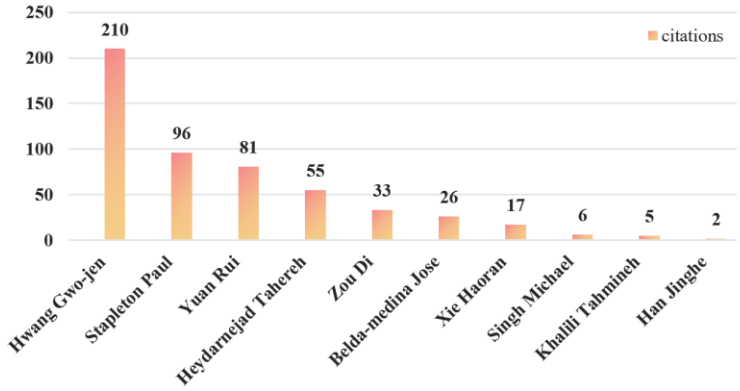

Figure 2
Top 10 authors with the highest number of publications

Overall, Hwang Gwo-jen's article was cited the most, with 210 times, indicating that he had the greatest influence among all authors in the field of CT in English Language.

The Most-cited Research Organizations

As shown in Figure 3, based on the VOSviewer software, the number of references Citation is an important indicator to measure the research influence of academic institutions, which can reflect the recognition degree and dissemination scope of their academic achievements (Aksnes et al., 2019). Among the top ten institutions selected, most of them are world-renowned universities and these institutions all published a large number of high-quality researches. Their research topics covered core hot issues in the field of Critical Thinking (CT) in English education. Among them, The Chinese University of Hong Kong ranked first with 240 citations. The second institution was The University of Hong Kong with 133 citations. The third-largest institution was Islamic Azad University, cited 132 times. Other influential institutions include The Education University of Hong Kong cited 92 times, Monash University cited 68 times, Beijing Normal University cited 59 times, University of Malaya cited 33 times, University of Alicante cited 28 times, Kazan Federal University cited 14 times, The analysis shows that the top ten institutions with high citations are concentrated in China Hong Kong and Iran, which reflects the academic superiority of China Hong Kong and Iran in CT research in English education.

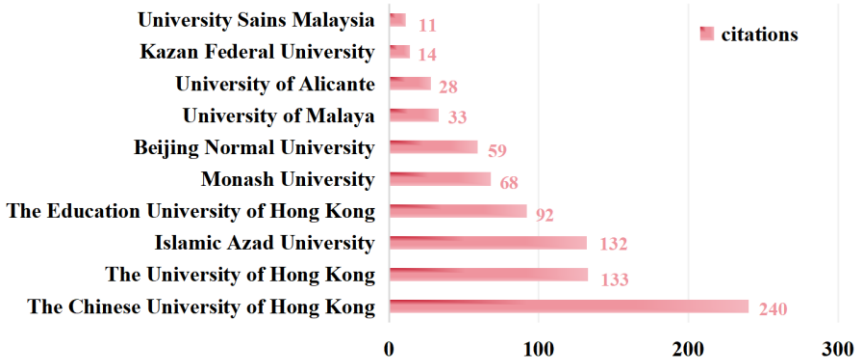

Figure 3
The top 10 cited research organizations

The Most Productive Countries

The number of publications is an important indicator of a country's contribution and activity in a field of research (Narayan et al., 2021). VOSviewer in this review helps identify countries that dominate Critical Thinking (CT) education research. After analyzing publications in different countries, it reveals the research centers and dominant forces of Critical Thinking (CT) in English education on a global scale. As shown in Figure 4, based on the VOSviewer software, the number of articles (documents) is an indicator that analyzes the top ten countries in terms of the number of articles published in this field. Among the top ten countries in terms of the number of articles published, they are mainly distributed in developed countries with rich academic resources and regions with active research fields. The first country is China with 162 papers, the second country is the United States with 138 papers, and the other countries with high number of articles are: Australia has 55 papers, England has 51 papers, Russia has 46 papers, Spain has 44 papers, Iran has 32 papers, Canada has 31 papers, Turkey has 28 papers and Malaysia has 27 papers.

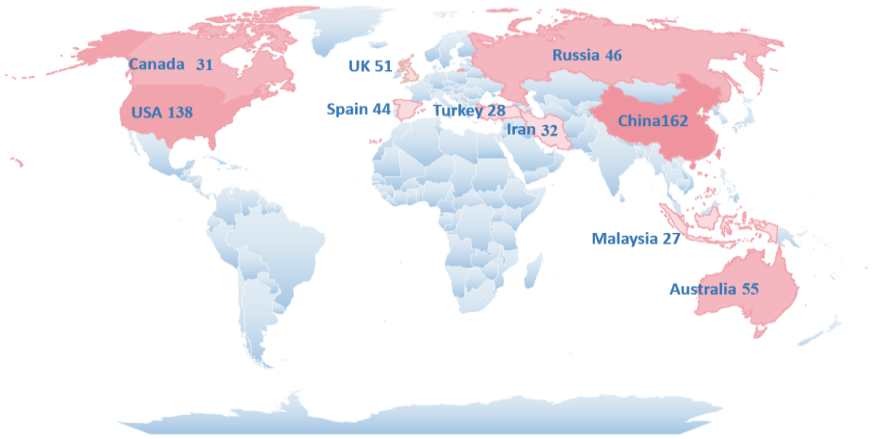

Figure 4
Top 10 countries with the highest number of publications

What are the Leading Research Hotspots and Emerging Trends of Critical Thinking in English Education?

Keyword co-occurrence analysis, cluster analysis and emergent analysis can present research hotspots and emerging trends in a field (Chen, 2017; Vázquez Cano et al., 2022). In this section, VOSviewer is selected to perform keyword co-occurrence analysis, which presents the network structure of keywords in Critical Thinking in English education research field with its visual function. Meanwhile, CiteSpace is used to perform cluster analysis, timeline analysis and burst keywords analysis to identify the key hotspots and dynamic changes of Critical Thinking (CT) in the development of English education research through its temporal clustering algorithm and emergent detection function.

3.3.1 Co-occurrence analysis of keywords

Keyword co-occurrence analysis plays an important role in scientific metric analysis (Cui et al., 2017; Vázquez Cano et al., 2022). In this study, a total of 95 symbiotic keywords were found, with the smallest symbiotic 2: each keyword co-existed in 2 or more articles. Based on these data, VOSviewer created a network visualization map (see Figure 5), and Figure 5 shows the network of keyword co-occurrence in the field of English language teaching and Critical Thinking (CT), depicting keywords as circles, the size of which represents their co-occurrence weight, and keywords with high occurrences are important research topics in this field (Jing et al., 2020).

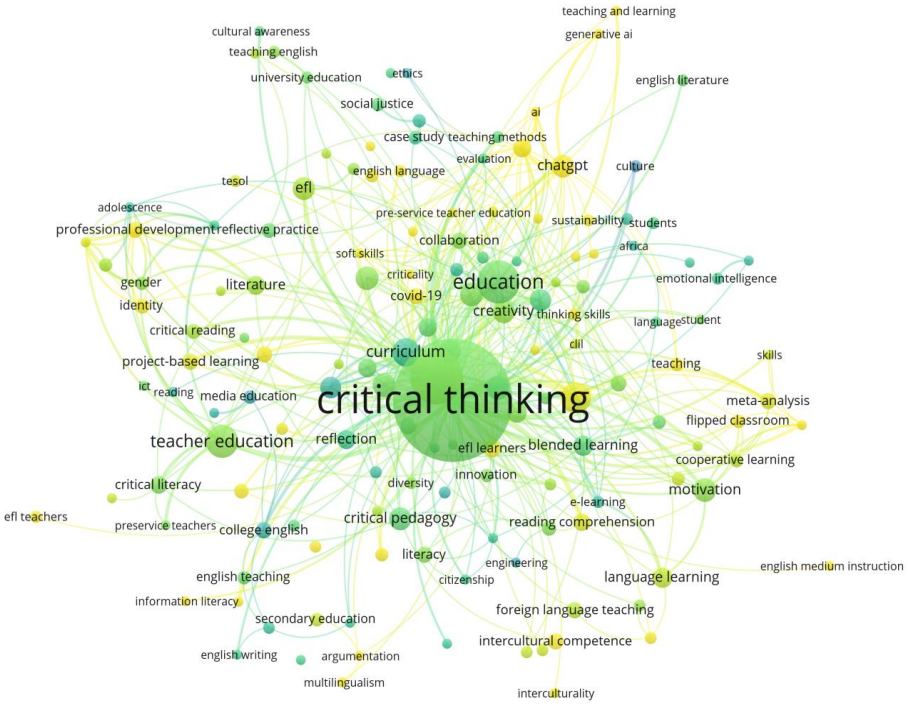

Figure 5
Keyword co-occurrence analysis for CT in English teaching

Keyword co-occurrence analysis plays an important role in scientific metric analysis (Feifei, 2023). In this study, a total of 95 symbiotic keywords were found, with the smallest symbiotic 2: each keyword co-existed in 2 or more articles. Based on these data, VOSviewer created a network visualization map (see Figure 5), and Figure 5 shows the network of keyword co-occurrence in the field of English language teaching and CT, depicting keywords as circles, the size of which represents their co-occurrence weight, and keywords with high occurrences are important research topics in this field (Jing et al., 2020).

Figure 5 shows the most common vocabulary used in CT and English language education. It can be concluded that CT, education, teacher education, and reflectivity have become key components in the field of English language education. In addition, the emergence of "media education", "information literacy" and "ChatGPT" reflects the focus on the potential of technology-enhanced learning to drive CT in English education. These trends demonstrate the far-reaching impact of education modernization and globalization, and show that educators and researchers are committed to leveraging emerging technologies and pedagogical concepts to better adapt to the needs of contemporary learning in integrating CT into English language teaching and cutting-edge developments in global education.

The Top 20 Keywords Analysis

Keyword co-occurrence analysis examines the frequency with which specific terms appear together within the same documents, revealing patterns of related concepts and research focus. Keywords are highly condensed representations of the themes in academic articles, and their frequency, relevance, and co-occurrence patterns reveal the core hotspots and intrinsic connections within a research field (Liang et al., 2017). As the embodiment of an article's core content, keywords play a critical role in identifying research trends and analyzing emerging patterns (Liang et al., 2017). By analyzing the frequency, relevance, and co-occurrence patterns of keywords, researchers can uncover the fundamental hotspots, interconnections, and developmental trajectories within the field of Critical Thinking (CT) in English education.

As shown in Table 1, an analysis of the top 20 most frequent keywords provides insight into the primary topics and research directions in the field of CT in English education. CT, ranking first, appears 172 times with a total link strength of 177, underscoring its central importance and strong associations with other topics. This keyword primarily reflects the core issues related to CT. Higher Education, with 50 occurrences and a total link strength of 67, ranks second, highlighting its prominence as a key area of focus, particularly in studies related to higher education. Education, with 35 occurrences and a total link strength of 38, further underscores the extensive attention directed toward education as a foundational research domain. The remaining keywords include Teacher Education (23 occurrences, total link strength of 27), Systematic Review (21 occurrences, total link strength of 38), Curriculum (18 occurrences, total link strength of 21), Academic Writing (14 occurrences, total link strength of 12), Assessment (14 occurrences, total link strength of 22), English (14 occurrences, total link strength of 11), English Language Teaching (14 occurrences, total link strength of 12), Motivation (14 occurrences, total link strength of 21), ChatGPT (13 occurrences, total link strength of 21), Creativity (13 occurrences, total link strength of 29), Critical Pedagogy (13 occurrences, total link strength of 8), Critical Thinking Skills (13 occurrences, total link strength of 12), EFL (13 occurrences, total link strength of 18), Communication (12 occurrences, total link strength of 23), Pedagogy (12 occurrences, total link strength of 16), Blended Learning (11 occurrences, total link strength of 13), and Language Learning (11 occurrences, total link strength of 13).

Among these, Teacher Education, Systematic Review, and Curriculum demonstrate their significance within the research landscape. Meanwhile, Academic Writing, Assessment, English, English Language Teaching, Motivation, and Creativity reflect the diverse themes characterizing the field, such as critical pedagogy, teaching assessment and motivation, and innovative practices in cross-linguistic learning contexts.

Overall, through the keywords co-occurrence network map and top 20 keywords analysis, CT, Higher Education, Education, and Teacher Education as central research hotspots, underscoring their importance and wide-ranging influence in the study of CT and English education. In addition, the emergence of "media education", "information literacy" and "ChatGPT" reflects the focus on the potential of technology-enhanced

learning to drive CT in English education. The distribution and co-occurrence of high-frequency keywords not only reveal the knowledge structure of this field but also provide valuable references for the deepening and expansion of future research.

Table 1
Top 20 high frequency keywords

Rank	Keywords	Occurrences	Total Link Strength
1	Critical Thinking	172	177
2	Higher education	50	67
3	Education	35	38
4	Teacher education	23	27
5	Systematic review	21	38
6	Curriculum	18	21
7	Academic writing	14	12
8	Assessment	14	22
9	English	14	11
10	English language teaching	14	12
11	Motivation	14	21
12	ChatGPT	13	21
13	Creativity	13	29
14	Critical pedagogy	13	8
15	Critical Thinking skills	13	12
16	EFL	13	18
17	Communication	12	23
18	Pedagogy	12	16
19	Blended learning	11	13
20	Language learning	11	13

Clustering Analysis and Time Line Map Analysis for Critical Thinking in English Education

The timeline view feature in CiteSpace mainly describes the relationship between keywords, clustering, and time span (Zheng et al., 2020). Setting the time slice interval to 1 year and switching to a timeline visualization map can clearly see the development of Critical Thinking (CT) in English teaching towards each cluster hotspot. As shown in Figure 8, the ordinate axis represents the time, the abscissa axis represents the clustering, the node represents the earliest time when the keyword appears, and the larger the node, the higher the number of attention and articles. Cluster analysis reveals the core thematic networks and interrelationships of CT in the field of English language teaching research. In the cluster analysis of the timeline diagram, the co-occurring keywords are divided into multiple research topic groups, each group represents a relatively independent research direction in a specific time period, so as to show the development of research hotspots over time.

Keyword timeline map analysis is initiated by setting the following parameters in CiteSpace: (i) Study period January 1995 to November 2024, per slice year: 1, (ii) Node type: keyword, selection criteria: g-index, scale factor: 17, and other parameter functions default to the above settings in the Citepace software.

Figure 6 illustrates the annual trends in research topics in the field of English language education through cluster analysis from 1995 to 2024. The time series view of the keyword occurrence network contains 291 nodes as keywords and 898 links, covering the period 1995-2024. In the time series view, the cluster labels are determined using the abstract terms and likelihood ratio (LLR) weighting algorithm, and the LLR algorithm determines the cluster labels for the primary topics in each cluster in the network. As shown in the figure, the ModularityQ is 0.4821, which is greater than 0.3, indicating that the clustering structure is obvious, and the Weighted Mean Silhouette S is 0.7726 and greater than 0.5, indicating that the clustering is reasonable.

Table 4 lists the values for this cluster, including those with the attributes Cluster ID, Cluster size, Silhouette value, label LLR, and average reference year. CiteSpace offers three types of clustered label extraction algorithms: LLR (Log-Likelihood Ratio), word frequency-inverse document frequency (TF-IDF), and mutual information. The default algorithm, the LLR algorithm, is used to extract clustering labels. The LLR algorithm is a statistical test that compares the fit of two models (the zero model and the surrogate model). The algorithm is based on likelihood ratios, which are used to represent which model the data is more likely to be covered by.

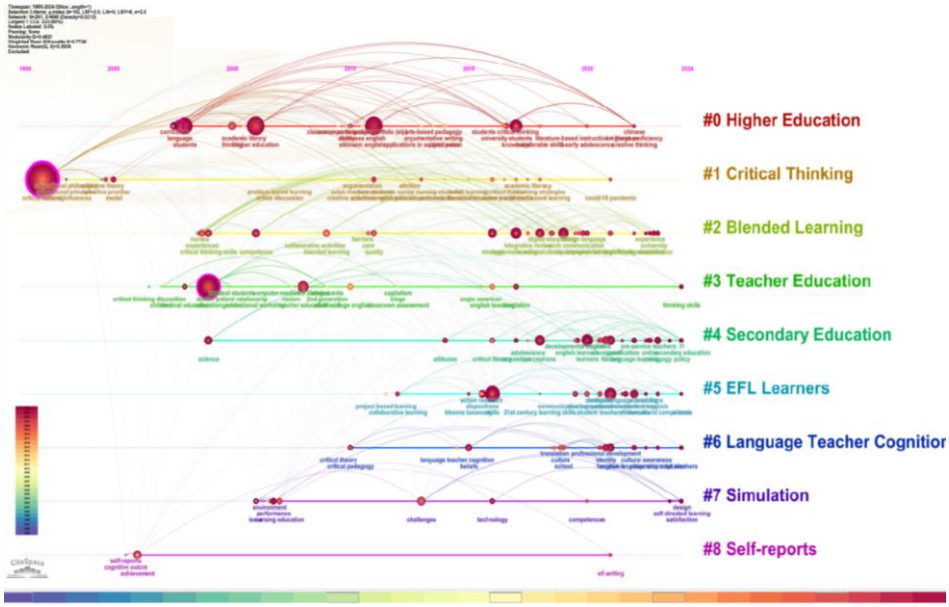

Figure 6
Year-wise trends for CT research in English education domain

After analyzing Figure 6 and Table 2, based on the average citation year for each cluster in the network over the period 1995-2024, Cluster 0 (High Education), Cluster 1 (Critical Thinking), Cluster 2 (Blended Learning), Cluster 3 (Teacher Education), Cluster 7 (simulation) and Cluster 8 (Self-reports) are the starting clusters with an average citation year of 2009, which represent earlier research in the field of Critical

Thinking (CT) in English education. Cluster 5 (EFL Learners) and Cluster 7 (Language Teacher Cognition) started in 2019, and Cluster 4 (Secondary Education) was the latest of 2020.

The average citation year for 2011-2016 predicts important areas of study in the field of CT education in English, such as higher education, academic writing, 21st century skills, CT, blended learning, and teacher-student interaction. The most recent areas in the field were identified as Cluster 5 (EFL Learners), Cluster 7 (Language Teacher Cognition), and Cluster 4 (Secondary Education), which are currently valid clusters and are directly related to each other. In addition, new progress has been made in many emerging research fields such as digital games, educational technology, collaborative learning, and reading comprehension, which will become important directions for CT research in English teaching in the future.

Overall, through cluster and timeline map analysis, it is clear that the study of CT in English language teaching focuses on the following areas: higher education, academic writing, 21st century skills, CT, blended learning, and teacher-student interaction. At the same time, it also can be found that some cutting-edge topics, such as digital games, educational technology, collaborative learning, and reading comprehension.

Table 2
Summary of clusters for CT research in English education domain

Cluster ID	Size	Silhouette	Mean (Year)
0	39	0.791	2011
1	38	0.869	2008
2	37	0.73	2013
3	27	0.833	2009
4	25	0.708	2020
5	24	0.726	2019
6	20	0.586	2019
7	15	0.799	2015
8	8	0.975	2003

Burst Keywords Analysis

Emergent words refer to keywords that suddenly increase or increase in frequency over a period of time (Zheng et al., 2020). Through the analysis of the emergence of keywords through CiteSpace, the hot concepts and research directions of CT with strong timeliness and influence in the field of English education research are identified. The intensity and duration of emergent words reflect the importance of the keyword and the degree of research activity over a specific period of time (Chen, 2016). As shown in Table 3, it contains five different numeric categories: Keywords, Years, Keyword Significance (Intensity), Start Year (Begin), and End Year.

The 10 burst keywords after selection are based on the analysis of 878 articles related to the teaching of CT in English, among which the results of emergent analysis show that college English (emergence-intensity 6.33), motivation (emergence-intensity 4.72), critical pedagogy (emergence-intensity 4.41) , 21st century skills (emergence-intensity 4.3), teacher education (emergence-intensity 4.11), and reading comprehension (emergence-intensity 4.1) are the most influential keywords. Among them, the high-intensity emergence of "online" in 2023-2024 shows that in the context of digital transformation, the optimization of online teaching and learning methods has become the focus of research attention. In addition, the high-intensity emergence of "motivation" in 2023-2024 shows that researchers are paying more attention to how to stimulate and maintain learners' learning motivation in a digital learning environment. Since 2010, "critical pedagogy" has emerged, indicating that the theoretical discussion of critical pedagogy has gradually deepened and has been applied in specific classroom practice. In addition, the short-term high-frequency emergence of keywords such as "reading comprehension" (2021-2021), "teacher education" (2022-2022) and "professional development" (2022-2022) reflects the specific application of CT research in reading comprehension and teacher education and teachers' professional development. In contrast, "college English" (2010-2017), "critical pedagogy" (2010-2016) and "business English" (2011-2015) were the earlier but most influential keywords, suggesting that the integration of CT into college English and business English has been an important part of the field of research.

Table 3
The 10 keywords with the strongest citation bursts keywords

No.	Keywords	Year	Strength	Begin	End
1	College English	2010	6.33	2010	2017
2	Critical Pedagogy	2010	4.41	2010	2016
3	Business English	2011	3.49	2011	2015
4	21st century skills	2016	4.3	2016	2019
5	English Teaching	2016	3.43	2016	2019
6	Teacher Education	2008	4.11	2021	2021
7	Reading Comprehension	2021	4.1	2021	2021
8	Professional Development	2021	4.03	2021	2021
9	Motivation	2023	4.72	2023	2024
10	Online	2023	3.77	2023	2024

Through keyword burst analysis, it can be clearly seen the dynamic evolution and hot shift of CT research topics in the field of CT in English education. The emergence of the keyword "online" reveals the new requirements for learners' abilities in the context of technology. Future research may continue to deepen the use of online education tools and their impact on the development of thinking skills.

DISCUSSION AND CONCLUSION

This bibliometric analysis (BA) uncovered the current state and future directions of research on Critical Thinking (CT) in English education. An analysis of studies from 1995 to 2024 reveals a significant increase in publications, indicating sustained scholarly interest in this area. Taking the first research question into consideration, the results of the study are in line with the study conducted by Vázquez Cano at al (2022). The findings highlight Hwang Gwo-jen, Stapleton Paul, and Yuan Rui as the most frequently cited authors in the field. These authors' works have had significant impact on the academic community and have been widely cited and discussed globally. Prominent academic institutions such as The Chinese University of Hong Kong, The University of Hong Kong, and Islamic Azad University have made substantial contributions. Together, these high-cited organizations play a significant role in shaping research directions on CT in the field of English education. Additionally, China, the United States, and Iran are leading countries in this research domain. These nations demonstrate significant research influence in the domain of CT in English education.

Taking the second research question into consideration, the results of the study are in agreement with the study conducted by Feifei et al (2023). Keyword co-occurrence, clustering, and timeline map analysis identifies higher education, academic writing, 21st-century skills, Critical Thinking as both a core skill and pedagogical goal, higher education, teacher education, and teacher-student interaction as the primary research themes, holding great influence and significance in the domain of CT within English education. In addition to these established areas, emerging topics such as media education, information literacy, ChatGPT, digital games, educational technology, collaborative learning, and reading comprehension are emerging trends in this area, reflecting the focus on the potential of technology-enhanced learning model in the field of CT in English education. Despite these advancements, several research gaps persist. These include small sample sizes, an overreliance on single research methods, constraints imposed by teaching contexts and cultural backgrounds, and challenges in the application of technology. Future research should address these gaps by broadening the sample scope and including diverse teaching contexts and cultural settings to achieve more generalizable results.

LIMITATION

Despite offering valuable insights, this study acknowledges several limitations. Firstly, the analysis was based solely on data retrieved from the Web of Science Core Collection, which, while comprehensive, may exclude relevant literature indexed in other academic databases such as Scopus, ERIC, or regional and non-English language sources. This reliance on a single, English-dominant database may result in a partial representation of the global research landscape. Secondly, the use of bibliometric methods provides macro-level patterns but lacks the depth of qualitative interpretation regarding pedagogical implementation and classroom-level practices. To address these limitations, future research is encouraged to adopt mixed-methods approaches, incorporating qualitative case studies or longitudinal analyses to deepen understanding of how CT is fostered in diverse educational contexts. Additionally, expanding the

scope beyond English education to include other disciplines would offer a more holistic view of CT pedagogy and promote interdisciplinary educational innovation.

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