

Global Research On College Student Leadership: A Bibliometric Review And Visualization Analysis (2016– 2025)

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Abstract: College student leadership has become a focal point in higher education as universities worldwide strive to cultivate graduates who are not only academically competent but also capable of leading in complex and dynamic environments. This study presents a comprehensive bibliometric review and visualization analysis of global research on college student leadership between 2016 and 2025, to map its knowledge structure, identify research hotspots, and explore future directions. Data were retrieved from the Web of Science (WoS) and China National Knowledge Infrastructure (CNKI) databases, yielding 441 international journal articles and 16 Chinese core publications. Using VOSviewer 1.6.20, we conducted co-authorship, keyword co-occurrence, and co-citation analyses to examine the intellectual landscape of the field. The results reveal four significant findings: (1) a steady increase in research output, with significant growth since 2020; (2) the dominance of the United States and China, accompanied by expanding cross-country collaborations; (3) research hotspots clustered around educational policy and equity, leadership in diverse contexts, student engagement and psychological factors, and digital leadership in hybrid learning environments; and (4) the intellectual foundation shaped by social cognitive theory, organizational behavior frameworks, and advanced quantitative methods such as structural equation modeling (SEM). This review not only consolidates fragmented knowledge but also highlights future research opportunities, including longitudinal studies, cross-cultural comparisons, and theoretical innovation. The findings provide valuable insights for scholars, practitioners, and policymakers seeking to enhance leadership development programs in higher education.

Keywords: college student leadership; bibliometric review; visualization analysis; higher education; research hotspots.

1. INTRODUCTION

In the context of rapid globalization and digital transformation, leadership development has emerged as a critical dimension of higher education worldwide. Universities are no longer expected to impart academic knowledge solely but also to cultivate students' ability to lead, collaborate, and innovate in uncertain and complex environments (Kouzes & Posner, 2017). Over the past decade, the concept of leadership has shifted from being perceived as a position of

authority to being recognized as a set of transferable competencies, including self-awareness, critical thinking, teamwork, and social influence (Dugan & Komives, 2020).

Internationally, leadership education has been increasingly embedded in both curricular and co-curricular programs. Western universities, particularly in the United States and Europe, have developed student-centered initiatives such as mentorship schemes, service-learning projects, and experiential learning models, aiming to cultivate holistic competencies (Komives et al., 2013). In China, higher education reforms emphasize “comprehensive quality education,” with leadership development being advanced through the “second classroom” and student association activities (Li & Huang, 2023). These initiatives reflect a growing global consensus that leadership education is essential for fostering civic engagement, employability, and lifelong learning.

Despite the growing volume of research on college student leadership, the existing literature remains fragmented, with limited synthesis of global research trends and intellectual patterns. A bibliometric approach can address this gap by offering a quantitative and visual overview of the field, enabling scholars to identify research clusters, influential authors, and evolving themes (Aria & Cuccurullo, 2017; van Eck & Waltman, 2010).

This study aims to fill the gap by conducting a systematic bibliometric and visualization analysis of research on college student leadership published between 2016 and 2025. Specifically, it addresses the following research questions:

What are the global publication trends, core contributors, and collaborative networks in college student leadership research?

What are the main research hotspots, theoretical foundations, and emerging themes in this field?

How do international and Chinese studies compare in terms of focus and methodology?

What directions should future research pursue to advance leadership education in higher education contexts?

By answering these questions, this review offers a comprehensive knowledge map of the field and provides actionable insights for both researchers and practitioners aiming to design effective leadership programs for college students.

2. METHODS

2.1 Data Sources and Search Strategy

This review adopted a bibliometric approach, drawing data from two major academic databases: Web of Science (WoS) and China National Knowledge Infrastructure (CNKI). A composite search query was constructed to capture studies focusing on college student leadership: ALL = (“Leadership of College Student” OR “Leadership Development” OR “Leadership Skills” OR “Leadership Competence”) AND (“Higher Education” OR “University Students” OR “Undergraduate Students”) AND (“Student Engagement” OR “Student Organizations” OR “Student Associations”). Within WoS, a total of 19,305 records were initially retrieved. By applying inclusion criteria—restricting the publication type to peer-reviewed journal articles, selecting only Social Sciences Citation Index (SSCI) sources, and limiting the time frame to 2016–2025—the dataset was narrowed to 441 highly relevant articles.

In parallel, a similar search strategy was executed in CNKI: (“College Leadership” OR “Leadership of College Student” OR “Leadership Development”) AND (“Higher Education” OR “College Students” OR “Undergraduates”) AND (“Student Engagement” OR “Student Organizations” OR “Student Societies”). By limiting the time frame to the last ten years and filtering for core journals recognized by Peking University, 16 high-quality Chinese studies were selected from an initial pool of 518 articles.

2.2 Inclusion and Exclusion Criteria

The literature selection followed a structured screening process. Articles were included if they: Focused on leadership development or competencies among college/university students; Were empirical studies, theoretical frameworks, or comprehensive reviews; Were published in SSCI-indexed journals (for WoS) or core journals (for CNKI).

Studies unrelated to higher education, leadership outside the student context, or articles lacking sufficient bibliographic data were excluded.

2.3 Analytical Tools and Procedure

The bibliometric data were analyzed using VOSviewer (version 1.6.20), a visualization tool for mapping co-authorship networks, keyword co-occurrence, and literature co-citation. Specifically:

National Collaboration Networks: Examined cross-country cooperation patterns, highlighting dominant research hubs (e.g., USA, China).

Keyword Co-occurrence Analysis: Clustered high-frequency terms to identify research hotspots, such as educational policy, self-efficacy, and pandemic-related leadership challenges.

Co-citation Analysis: Traced the intellectual base of the field, identifying frequently cited works, such as Bandura (1977) on social cognitive theory and Kline (2015) on structural equation modeling.

All results were visually represented in network maps and density graphs, which provide a structured overview of the knowledge landscape of college student leadership research.

3. RESULTS

3.1 Publication Trends

The analysis of publication trends from 2016 to 2025 reveals a consistent and notable growth in research on college student leadership. Based on the WoS dataset, the number of international publications increased from fewer than 30 articles in 2016 to over 70 articles annually by 2023, reflecting a compound annual growth rate of approximately 12%. This surge is particularly evident after 2020, which corresponds to the global shift toward digital and hybrid education models during the COVID-19 pandemic. The pandemic prompted a re-evaluation of leadership competencies such as adaptability, resilience, and digital communication, resulting in a marked increase in scholarly interest.

In the Chinese academic context, as indicated by the CNKI dataset, the number of core journal articles on college student leadership has remained smaller in scale. Still, it shows a steady upward trajectory, increasing from 1–2 articles per year in 2016–2017 to 3–4 articles annually after 2021. This trend aligns with the implementation of national policies emphasizing

“comprehensive quality education” and the role of student associations and “second classroom” activities in fostering leadership development (Li & Huang, 2023).

A comparative analysis of WoS and CNKI data suggests that while international research exhibits diverse theoretical perspectives and interdisciplinary approaches, Chinese research emphasizes policy-driven initiatives and structured organizational contexts. This complementary focus provides opportunities for future cross-national comparative studies.

As shown in Figure 1, the annual publication trends for international studies indicate a sharp increase in research output between 2020 and 2023, suggesting that college student leadership is becoming an increasingly critical topic in higher education research.

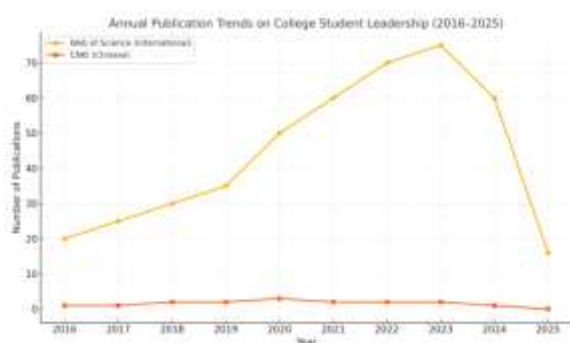


Figure 1. Annual Publication Trends on College Student Leadership Research (2016–2025)
Note: Data derived from Web of Science (n = 441) and CNKI (n = 16), retrieved in June 2025.

3.2 National Collaboration Networks

The national collaboration analysis, based on the WoS dataset, reveals that research on college student leadership is concentrated in a few dominant countries, with the United States accounting for nearly 38% of all publications. The U.S. also serves as the most prominent hub in the collaboration network, maintaining strong research partnerships with the United Kingdom, Australia, and Canada. These collaborations frequently focus on themes such as cross-cultural leadership development, service-learning initiatives, and student engagement in globalized educational contexts.

China ranks second in research output, contributing approximately 22% of total publications, with a noticeable rise in studies after 2019. This increase aligns with educational reform policies aimed at integrating leadership training into holistic student development. While Chinese scholarship has traditionally been domestically focused, recent collaborations with Malaysia, South Korea, and Singapore indicate a growing effort to build regional research networks.

European countries, including the United Kingdom, Germany, the Netherlands, and Sweden, form a distinct collaboration cluster that emphasizes inclusive and multicultural leadership education. Their research often explores the role of institutional culture, diversity, and equity in shaping student leadership competencies.

In the Asia-Pacific region, partnerships among China, Malaysia, and South Korea have intensified, often centering on digital leadership, hybrid learning environments, and the “second classroom” as key components of leadership cultivation. These regional collaborations

underscore the emerging shift from Western-centric models to a more globally distributed research landscape.

As shown in Figure 2, the national collaboration network map highlights the dominant contributors (e.g., U.S. and China) and the strength of their co-authorship links. The visualization also demonstrates that while North America and Europe lead in publication volume, Asia-Pacific countries are rapidly increasing their influence through both output and international collaboration.

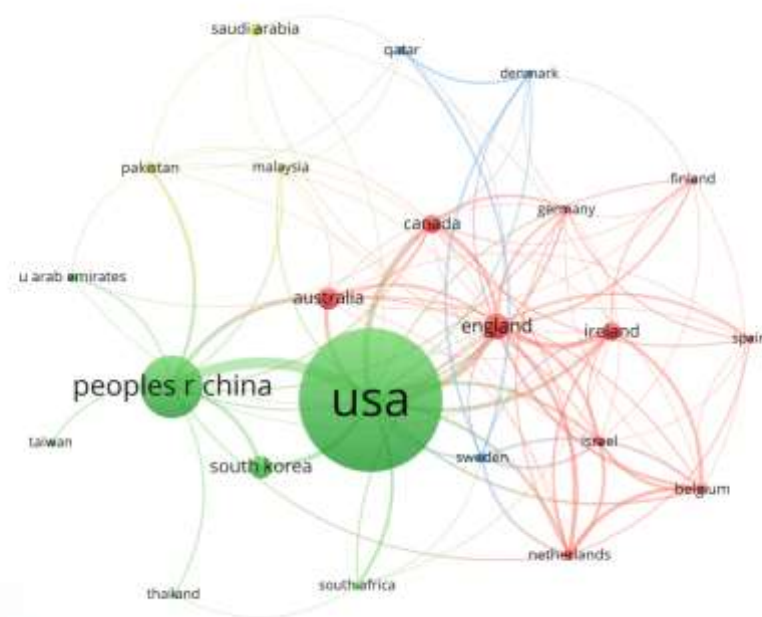


Figure 2. National Collaboration Network of College Student Leadership Research (2016–2025)
Note: Visualization generated using VOSviewer 1.6.20, based on 441 WoS-indexed articles.

3.3 Keyword Clusters and Research Hotspots

The keyword co-occurrence analysis was conducted using VOSviewer (version 1.6.20) to map the thematic landscape of college student leadership research between 2016 and 2025. A minimum occurrence threshold of five was applied, resulting in 128 high-frequency keywords extracted from the WoS and CNKI datasets. The visualization revealed four major clusters, each representing a distinct research focus and theoretical foundation.

Cluster 1: Educational Policy and Equity (Red Cluster). This cluster contains keywords such as “education policy,” “equity,” “student success,” “leadership programs,” and “higher education reform.” Research in this cluster emphasizes the impact of institutional policies and diversity initiatives on leadership cultivation, with a strong focus on inclusive education and the development of leadership as a critical life skill (Garcia et al., 2019).

Cluster 2: Leadership in Diverse Contexts (Blue Cluster). This cluster is characterized by terms such as “nursing education,” “STEM leadership,” “gender differences,” and “female leadership.” Studies here examine leadership within specific disciplines or demographic groups, highlighting the unique challenges faced by female students or underrepresented minorities in leadership development (Ray & Garcia, 2019).

a practical set of behaviors and competencies. This cluster connects leadership development to institutional culture, organizational climate, and student engagement, highlighting the role of student organizations and the “second classroom” as leadership incubators.

Cluster 3: Quantitative Methodologies and Measurement Models (Green Cluster). This cluster is dominated by methodological literature, such as Fornell & Larcker (1981) on construct validity and Kline (2015) on structural equation modeling (SEM). These works underpin the empirical rigor of leadership studies, enabling the testing of complex models linking leadership, engagement, and organizational factors.

Emerging trends also show the integration of digital leadership theories and crisis leadership models, particularly in response to COVID-19 and hybrid education environments. This indicates a gradual expansion of the theoretical landscape from traditional frameworks to contemporary, technology-driven paradigms.

As illustrated in Figure 4, the co-citation network highlights the central position of Bandura (1977), Kouzes & Posner (2017), and Kline (2015), which collectively shape the conceptual and analytical backbone of the field.

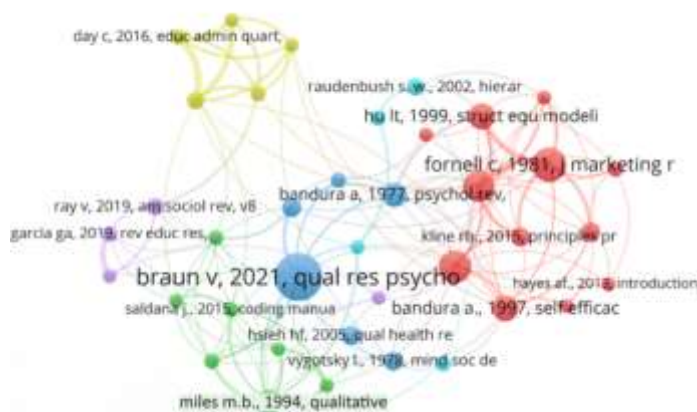


Figure 4. Co-citation Network of College Student Leadership Research (2016–2025)

Note: Visualization generated using VOSviewer 1.6.20, based on 441 WoS-indexed articles and 16 CNKI core studies.

4. DISCUSSION

4.1 Overview of Research Trends

The bibliometric analysis of publications from 2016 to 2025 demonstrates that college student leadership has evolved into an increasingly significant research domain within higher education. As indicated in Figure 1, the annual number of studies has grown steadily, particularly after 2020, with a compound annual growth rate of approximately 12% in international publications. This surge reflects the heightened emphasis on leadership as a core competency for employability, civic engagement, and personal development, especially in response to the challenges posed by the COVID-19 pandemic and the digital transformation of learning environments.

From a geographical perspective, the research landscape remains dominated by the United States and China, which together account for more than 60% of global publications (Figure 2). The United States maintains a leading role, focusing on student-centered leadership models, service-learning initiatives, and experiential learning approaches. Chinese research, while smaller in scale, has shown a notable upward trajectory since 2019, reflecting policy-driven efforts to integrate leadership training into “second classroom” activities and institutional development plans. Other emerging contributors include South Korea, Malaysia, and Australia, which have increasingly collaborated with both the United States and China, indicating a growing regional and cross-national research network.

The keyword analysis (Figure 3) suggests that the thematic focus of the field is expanding from traditional leadership frameworks to interdisciplinary and technology-oriented perspectives. Research hotspots such as digital leadership, student engagement, emotional intelligence, and hybrid learning indicate a shift toward exploring how leadership competencies adapt to virtual and globalized education contexts.

Furthermore, the co-citation network (Figure 4) underscores the intellectual maturity of this field, which is grounded in social cognitive theory (Bandura, 1977), the Five Practices of Exemplary Leadership (Kouzes & Posner, 2017), and quantitative methodologies such as structural equation modeling (Kline, 2015). These foundations reflect a strong methodological emphasis on empirical validation and theoretical integration.

In summary, the research trends highlight an increasingly global, interdisciplinary, and digitally influenced landscape, with notable growth in both the volume and complexity of studies on college student leadership.

4.2 Comparative Analysis of International and Chinese Research

The comparative analysis of international and Chinese studies on college student leadership reveals both converging priorities and distinctive approaches. While both emphasize the importance of leadership as a critical competency for holistic student development, their thematic focuses, theoretical frameworks, and research methodologies exhibit notable differences.

International Research Focus. As shown by the WoS dataset, international studies—particularly from the United States, the United Kingdom, and Australia—tend to adopt a student-centered and competency-based approach. Leadership is conceptualized as a transferable skill set involving self-awareness, collaboration, critical thinking, and social influence (Komives et al., 2013; Dugan & Komives, 2020). These studies often emphasize experiential learning, service-learning programs, and mentorship as mechanisms for leadership cultivation. A significant portion of this research also addresses diversity, equity, and inclusion (DEI), exploring how cultural and gender differences shape leadership opportunities and outcomes (Ray & Garcia, 2019).

Chinese Research Focus. In contrast, Chinese studies—represented by the CNKI dataset—focus more on policy-driven frameworks and institutional initiatives, particularly the “second classroom” as a structured platform for leadership development. Leadership in the Chinese context is closely linked to organizational climate, student engagement, and collectivist values, reflecting the broader educational policy goals of cultivating well-rounded graduates who possess

both professional competencies and civic responsibility (Li & Huang, 2023). Compared to international research, Chinese studies place greater emphasis on institutional mechanisms (e.g., student associations, campus culture, and administrative support).

Theoretical and Methodological Differences. International studies frequently employ mixed methods and advanced quantitative techniques, such as structural equation modeling (SEM), to test complex relationships among variables like engagement, leadership, and psychological factors. By contrast, Chinese research—though increasingly adopting SEM—still features a substantial number of descriptive and cross-sectional survey studies. International scholarship also tends to integrate contemporary leadership models (e.g., transformational, servant, and digital leadership), whereas Chinese studies remain anchored in organizational behavior and traditional educational theories.

Emerging Convergence. Despite these differences, the analysis of collaboration networks (Figure 2) indicates growing cross-national partnerships, particularly between Chinese and Southeast Asian scholars. These collaborations are gradually bridging the gap between Western individualistic leadership paradigms and Eastern collectivist approaches, suggesting a trend toward hybrid leadership models that combine global competencies with local educational priorities.

4.3 Research Gaps and Emerging Directions

Despite the rapid growth of research on college student leadership from 2016 to 2025, this field remains fragmented and presents several areas requiring further exploration. A closer review of the bibliometric results highlights the following research gaps and emerging directions:

Limited Longitudinal and Multi-Institutional Studies. Most existing studies are cross-sectional, focusing on leadership outcomes at a single time point. This limits the ability to capture the dynamic and developmental nature of student leadership. Future research should adopt longitudinal designs to trace leadership growth across students' academic journeys and compare outcomes across multiple institutions.

Insufficient Cross-Cultural and Comparative Research. While international studies emphasize individual competencies and Western leadership paradigms, Chinese and Asian studies focus on collective and organizational factors. There is a lack of systematic cross-cultural analyses that integrate these perspectives. Future research could explore hybrid leadership models that combine the strengths of both individualistic and collectivist approaches, offering a more global understanding of leadership education.

Emerging Digital Leadership Contexts. The COVID-19 pandemic has transformed higher education, shifting much of the leadership experience to virtual and hybrid environments. However, few studies have examined how digital competencies, virtual teamwork, and online engagement contribute to leadership development. Research on digital leadership frameworks and AI-supported leadership training is an emerging area that warrants greater attention.

Overreliance on Self-Reported Measures. Current studies predominantly use self-report surveys, which may introduce response bias and fail to capture actual leadership behaviors. Future research should incorporate behavioral observations, peer assessments, and performance-based evaluations, potentially combining quantitative metrics with qualitative narratives to achieve a multidimensional understanding.

Underrepresented Groups and Inclusive Leadership. Leadership experiences of first-generation students, students from minority backgrounds, and those in non-traditional programs remain underexplored. Future work should focus on inclusive leadership education that addresses diverse student populations and equity challenges.

Emerging Directions. To address these gaps, future studies could focus on integrating digital and global competencies, applying mixed-method approaches, and building interdisciplinary frameworks that connect education, psychology, and organizational studies. Leveraging network analysis and big data techniques may also uncover hidden collaboration patterns and emerging themes in leadership education.

4.4 Summary of Findings

The discussion of research trends, international comparisons, and emerging gaps provides a comprehensive overview of the current state of college student leadership studies. Overall, the findings from 2016 to 2025 suggest that this field is experiencing sustained growth, thematic diversification, and methodological evolution, while still facing challenges that warrant deeper inquiry.

First, the publication trends indicate a steady increase in scholarly output, particularly after 2020, driven by global interest in digital learning, hybrid education, and resilience-focused leadership (Figure 1). Second, the collaboration networks highlight the dominance of the United States and China, with growing contributions from Asia-Pacific countries such as Malaysia and South Korea (Figure 2). These countries are beginning to bridge Western individualistic models and Eastern collectivist approaches, which is reshaping the international discourse on student leadership.

Third, the keyword co-occurrence analysis (Figure 3) reveals that research hotspots are clustered around educational policy and equity, leadership in specific disciplines, student engagement, and digital leadership, reflecting the multidimensional and interdisciplinary character of this field. Fourth, the co-citation network (Figure 4) demonstrates that the intellectual foundation is grounded in social cognitive theory, organizational leadership frameworks, and advanced quantitative methodologies such as structural equation modeling (SEM).

Despite this progress, the review identifies several research gaps. These include a lack of longitudinal studies, limited cross-cultural comparisons, insufficient exploration of digital leadership, and an overreliance on self-reported measures. Moreover, underrepresented student groups and inclusive leadership remain underexplored themes that could enrich future research.

In summary, the findings underscore a field that is evolving toward global, interdisciplinary, and technology-enhanced leadership education, but still requires theoretical innovation, empirical rigor, and broader inclusivity. These insights provide the foundation for the conclusions, theoretical contributions, and practical recommendations presented in the next chapter.

5. CONCLUSION AND RECOMMENDATIONS

5.1 Key Conclusions

This bibliometric review provides a comprehensive synthesis of global research on college student leadership from 2016 to 2025, revealing a field that is expanding both in scope and methodological rigor. The findings highlight several key conclusions:

First, research on college student leadership has grown steadily and globally. The analysis of publication trends (Figure 1) shows that scholarly output has increased significantly, especially after 2020, driven by the integration of leadership training into higher education and the digital transformation accelerated by the COVID-19 pandemic. This growth underscores the recognition of leadership as a core competency for employability, civic engagement, and personal development.

Second, the intellectual landscape is becoming more interdisciplinary. The keyword and co-citation analyses reveal that leadership studies are now intertwined with education policy, student engagement, emotional intelligence, and digital learning (Figures 3 and 4). The field is increasingly drawing insights from psychology, organizational behavior, and technology-enhanced education, signaling a shift toward multidimensional leadership frameworks.

Third, the United States and China dominate the research landscape, but their approaches differ. While international studies focus on student-centered and competency-based leadership models, Chinese scholarship emphasizes policy-driven frameworks and the “second classroom” as a key mechanism for leadership cultivation. These complementary perspectives suggest that integrating Western individualistic models with Eastern collectivist paradigms can yield more holistic leadership frameworks.

Finally, the field is theoretically grounded yet open to innovation. Classical theories such as Bandura’s social cognitive theory, Kouzes and Posner’s Five Practices of Exemplary Leadership, and Astin’s student engagement theory remain central, but emerging research themes—including digital leadership and hybrid learning environments—indicate a readiness for theoretical expansion and contextual adaptation.

In summary, college student leadership research is maturing into a globally relevant, interdisciplinary field, yet there remains a need for greater cross-cultural integration, longitudinal studies, and inclusion of underrepresented student groups.

5.2 Theoretical Contributions

This study advances the theoretical understanding of college student leadership by mapping the global intellectual landscape and uncovering the underlying structures that shape this field. The bibliometric and visualization analyses provide several key theoretical contributions:

First, it enriches classical leadership theories with global perspectives. The findings confirm the centrality of Bandura’s (1977) social cognitive theory and Kouzes and Posner’s (2017) Five Practices of Exemplary Leadership in explaining how students develop leadership competencies through observation, self-efficacy, and practice. By analyzing both international and Chinese scholarship, this review illustrates how these theories are adapted to different cultural and institutional contexts, thereby enhancing their cross-cultural validity.

Second, it reinforces the integration of student engagement frameworks. The prominence of Astin’s (1999) student engagement theory and related models in the co-citation network (Figure 4) highlights the importance of active participation, peer collaboration, and co-curricular involvement in shaping leadership outcomes. This review contributes to the theoretical dialogue

by demonstrating that engagement and leadership are mutually reinforcing constructs that must be considered together in higher education research.

Third, it clarifies the methodological foundations for leadership studies. By identifying structural equation modeling (SEM) and advanced statistical techniques as key methodological tools, this study emphasizes the importance of robust measurement models in validating leadership constructs (Fornell & Larcker, 1981; Kline, 2015). The bibliometric analysis underscores the growing trend of combining quantitative rigor with interdisciplinary perspectives, which strengthens both the reliability and theoretical depth of leadership research.

Finally, it contributes to theoretical innovation by mapping emerging themes. The identification of digital leadership, hybrid learning environments, and inclusive leadership as emerging hotspots suggests that traditional leadership theories are evolving to address contemporary challenges. This study provides a conceptual bridge between established frameworks and new paradigms, encouraging scholars to develop context-sensitive leadership models that reflect global educational transformations.

5.3 Practical Recommendations

The findings of this bibliometric review offer practical implications for higher education institutions, educators, and policymakers seeking to enhance student leadership development. By synthesizing global research trends, we propose the following recommendations:

Integrate Leadership Training into Curricular and Co-curricular Programs. Universities should embed leadership competencies into course assessment frameworks by introducing project-based learning, problem-solving tasks, and reflective assessments that cultivate teamwork, critical thinking, and decision-making. The development of cross-disciplinary leadership courses can provide students with both conceptual knowledge and practical tools.

Strengthen “Second Classroom” Mechanisms. Chinese studies highlight the role of student organizations, volunteer programs, and service-learning projects as effective platforms for leadership cultivation. Universities should recognize and credit these experiences through formal assessment systems, digital portfolios, or leadership transcripts, ensuring that co-curricular participation is linked to students’ personal and professional growth.

Enhance Institutional Support and Mentorship. A robust mentorship ecosystem—involving faculty, alums, and peer mentors—can offer continuous guidance and leadership modeling. Institutions should also invest in career counseling, digital leadership platforms, and leadership workshops that provide students with opportunities to practice leadership in real-world or simulated environments.

Develop Digital and Hybrid Leadership Competencies. The pandemic has accelerated the transition to online and hybrid learning, requiring students to master virtual collaboration, digital communication, and adaptability. Institutions can incorporate virtual team projects, online leadership simulations, and cross-cultural digital exchanges to prepare students for global leadership roles.

Formulate Policies and Evaluation Systems. Policymakers and institutional leaders should create clear leadership development frameworks with measurable outcomes, including engagement metrics, feedback mechanisms, and alums tracking. These data can inform

continuous improvement in leadership programs and align with quality assurance and accreditation standards.

By combining curriculum reforms, co-curricular innovation, and institutional support, universities can cultivate well-rounded leaders equipped to navigate complex social and professional environments.

5.4 Limitations and Future Research Directions

While this bibliometric review provides a comprehensive overview of college student leadership research from 2016 to 2025, several limitations should be acknowledged, which also guide future research opportunities.

Database and Language Limitations. The study primarily relies on data from Web of Science (WoS) and China National Knowledge Infrastructure (CNKI), which may not capture all relevant publications, particularly those indexed in Scopus, ERIC, or Google Scholar. Moreover, the analysis is limited to English and Chinese sources, potentially overlooking valuable studies in other languages. Future research should expand database coverage and incorporate multilingual data to achieve a more comprehensive perspective.

Methodological Constraints of Bibliometric Analysis. Bibliometric approaches are practical for identifying trends and patterns, but cannot capture the contextual richness or theoretical depth of individual studies. Future reviews could combine bibliometric mapping with systematic literature reviews or meta-analyses to integrate quantitative trends with qualitative insights.

Dynamic and Evolving Research Themes. The time frame of this review (2016–2025) captures the most recent decade of research. Still, it may not fully reflect emerging themes beyond mid-2025, such as AI-assisted leadership training, sustainability leadership, or global digital citizenship. Ongoing bibliometric updates are necessary to monitor the evolution of these themes.

Lack of Micro-Level Analysis. This study focuses on global and national research patterns, leaving a gap in understanding how specific leadership programs, institutional cultures, or student organizations influence leadership outcomes. Future studies should consider case studies, mixed-method approaches, and longitudinal designs to examine leadership development at the micro level.

Underexplored Inclusivity and Diversity. Leadership experiences of first-generation college students, marginalized groups, and students in non-traditional learning settings remain insufficiently addressed. Future research should focus on inclusive leadership models that promote equity and diversity.

Future Directions. To advance the field, researchers should prioritize cross-cultural comparative studies, investigate digital and hybrid leadership frameworks, and leverage network analysis, big data, and AI-based learning analytics. Such efforts will not only enrich theoretical foundations but also inform evidence-based policies and leadership practices.

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