

Mapping Logistics and Supply Chain Education Research: A Bibliometric Review of the 2006-2025 Literature

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Abstract

Purpose: This study updates the intellectual and thematic structure of logistics and supply chain education (LSCE) research over the twenty complete publication years from 2006 through 2025. It asks how the field has grown, which works form its knowledge base, and which pedagogical themes now organize the literature.

Design/methodology/approach: Records were retrieved from the Web of Science Core Collection using an Advanced Search topic query covering logistics education, logistics training, supply chain education, supply chain training, vocational logistics programs, and curriculum development in logistics. The raw set contained 122 records. Title-and-abstract screening removed 50 off-topic records, three 2026 records, and two duplicate/provisional records, yielding 67 articles and reviews. Descriptive performance analysis, reference co-citation analysis, and author-keyword co-occurrence analysis were conducted on the screened corpus.

Findings: The 67 publications received 712 citations (10.63 per paper) and produced an h-index of 18. Output accelerated after 2021 and peaked at 13 publications in 2024. The intellectual base is anchored by curriculum design, professional competencies, and the alignment of academic programs with industry requirements. Recent work increasingly emphasizes experiential learning, serious games, simulation, digital skills, and sustainability.

Originality/value: By applying transparent manual screening to a narrowly defined corpus and excluding the incomplete 2026 publication year, this review provides a reproducible account of LSCE as an educational research domain rather than as a broad proxy for supply chain management research.

Keywords: *logistics education; supply chain education; bibliometric analysis; curriculum; experiential learning; digital skills*

Introduction

Logistics and supply chain systems have become more digital, interconnected, and exposed to disruption. Employers consequently expect graduates to combine functional logistics knowledge with analytics, systems thinking, sustainability awareness, and the ability to collaborate across organizational

boundaries. Education providers face a persistent translation problem: industry practices change rapidly, whereas program structures, assessment systems, and faculty capabilities change more slowly. LSCE research has developed around this tension between disciplinary knowledge and employability.

Earlier studies established the need to define logistics as a coherent discipline, identify the competencies required of graduates, and align curricula with professional practice. Later studies broadened this agenda through action learning, simulation, humanitarian logistics, e-learning, and digital capability development (Foroughi, 2021; Pacheco-Velazquez, 2022). Recent Chinese studies have also used text mining to compare curriculum content with recruitment requirements and to analyze learner responses to logistics MOOCs (Li & Jia, 2024; Zheng et al., 2024). Yet the published landscape remains fragmented across management, education, transportation, engineering, and information-systems journals. A focused bibliometric synthesis is therefore useful for distinguishing enduring foundations from recent pedagogical shifts.

This study addresses three questions: (1) How did LSCE publication output and citation impact develop from 2006 to 2025? (2) Which cited works constitute the field's intellectual base? (3) Which themes are revealed by author-keyword co-occurrence? The contribution is methodological as well as substantive: broad topic searches were followed by explicit title-and-abstract screening so that medical training, agricultural extension, optimization models, and generic supply chain studies were not allowed to determine the educational map.

Literature Review

The foundational LSCE literature treats curriculum relevance as a joint responsibility of universities, professional bodies, and employers. Gammelgaard and Larson (2001) emphasized the competencies needed by logistics managers; Mangan and Christopher (2005) linked management development with the future supply chain role; and Gravier and Farris (2008) synthesized pedagogical content and methods. These works positioned LSCE at the intersection of disciplinary identity, curriculum architecture, and labor-market demand.

A second stream examines how students learn. Case-based modules, field trips, the beer game, humanitarian simulations, online platforms, and serious games translate complex flows and trade-offs into observable decisions (Pacheco-Velazquez et al., 2023). This experiential stream has become more important as digital transformation increases the value of analytics, visualization, and technology-enabled coordination. A third stream connects LSCE with sustainability and social responsibility, especially in humanitarian logistics, urban freight, and sustainable transport (Baker et al., 2023; Rosi & Obrecht, 2023). Together, these streams suggest that contemporary LSCE is moving from a content-centered model toward competency development through authentic, technology-supported learning environments.

Methods

Bibliometric Approach

The source database was the Web of Science Core Collection. The Advanced Search topic query combined exact phrases and closely related expressions for logistics education, logistics training, supply chain education and training, logistics curriculum, and vocational logistics programs. The search was limited to the SCIE and SSCI indexes and to articles and review articles. The intended observation window was January 1, 2006 through December 31, 2025; 2026 records were excluded because that year was incomplete at the time of data collection in September 2026.

The search returned 122 records. Both titles and abstracts were screened for direct relevance to education, curriculum, pedagogy, training, competency formation, or workforce development in logistics and supply chains. Fifty records were excluded as topically irrelevant, including clinical and nursing education, agricultural training, generic optimization, and studies that used logistics only as an operational

context. Three records dated 2026 and two duplicate or provisional versions were also removed. The final corpus comprised 67 records. Full records and cited references were retained for analysis.

Data Analysis

Performance indicators included annual publication counts, total citations, mean citations per document, and the h-index. Country and organizational participation were derived from author addresses using whole counting; consequently, internationally coauthored papers contributed once to each participating country. Reference co-citation links indicate how often two cited works appeared together in the reference lists of the screened papers. Author-keyword co-occurrence links indicate how often two keywords appeared in the same paper. Minor variants were normalized (for example, supply-chain management to supply chain management and simulations to simulation). Network layouts were generated with a force-directed algorithm, and communities were identified from weighted modular structure. Node size represents frequency; line width represents co-occurrence strength; colors distinguish communities.

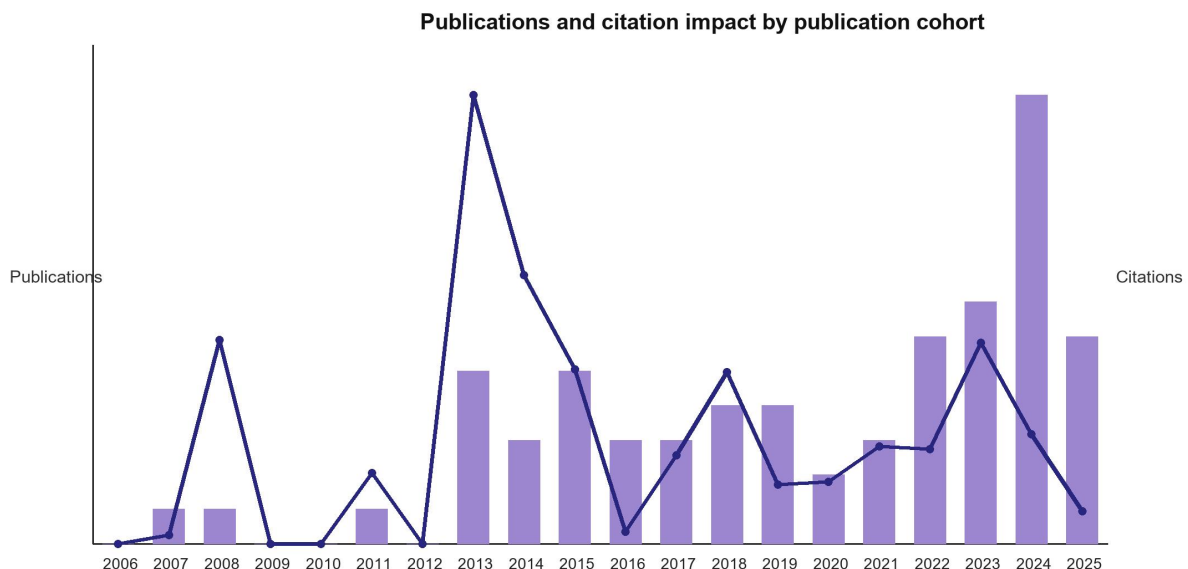
Results and Discussion

Publication and Descriptive Trends

The final sample contained 67 publications, 712 citations, an average of 10.63 citations per paper, and an h-index of 18. Output was sparse during the first years: one publication was recorded in each of 2007, 2008, and 2011. Activity expanded in 2013 and then became more continuous. The strongest growth occurred after 2021, with six papers in 2022, seven in 2023, and a peak of 13 in 2024. The six papers recorded in 2025 indicate continuing activity, although their citation window is necessarily short. Citation totals by publication cohort are concentrated in 2008, 2013, and 2014 because influential foundational studies from those years have had longer to accumulate citations. Thus, the apparent decline in cohort citations for recent years should not be interpreted as declining influence.

Figure 1

Annual Publications and Current Citations to Each Publication-Year Cohort, 2006-2025



Note. Citation values are current totals assigned to papers published in each year; they are not annual citation flows.

Table 1*Profile of the Screened LSCE Corpus*

Indicator	Value
Initial WoS records	122
Final screened publications	67
Publication window	2006-2025
Total citations	712
Mean citations per publication	10.63
h-index	18
Peak publication year	2024 (13 papers)

Management (26 records) and Education and Educational Research (16) were the leading Web of Science categories, followed by Transportation (7), Business (6), and Engineering, Multidisciplinary (5). This distribution confirms that LSCE is an interdisciplinary educational domain but remains institutionally anchored in management. The United States appeared in 19 publications, followed by Mexico (7), China and the United Kingdom (6 each), and Australia (5). Tecnológico de Monterrey was the most frequent organization (four papers), while Ohio State University appeared in three. Whole counting and address-name variants mean that these values describe participation rather than a strict productivity ranking.

Table 2*Ten Most Cited Documents in the Screened Corpus*

Rank	Document (year)	Citations
1	An analysis of logistics pedagogical literature Past and future trends in curriculum, content, and pedagogy (2008)	69
2	Logistics education: a look at the current state of the art and science (2013)	48
3	Global logistics management curriculum: perspective from practitioners in Taiwan (2013)	39
4	Logistics and supply chain education and jobs: a study of UK markets (2014)	38
5	A longitudinal view of supply chain education Assessing the challenge of retaining relevance in today's dynamic marketplace (2014)	31
6	Connecting industry and supply chain management education: exploring challenges faced in a SCM consultancy module (2013)	29
7	Urban freight logistics and land use planning education: Trends and gaps through the lens of literature (2023)	27
8	Current state and future potential of logistics and supply chain education: a literature review (2018)	26
9	Teaching supply chain management using a modified beer game: an action learning approach (2015)	26
10	Supply chain workforce training: addressing the digital skills gap (2021)	25

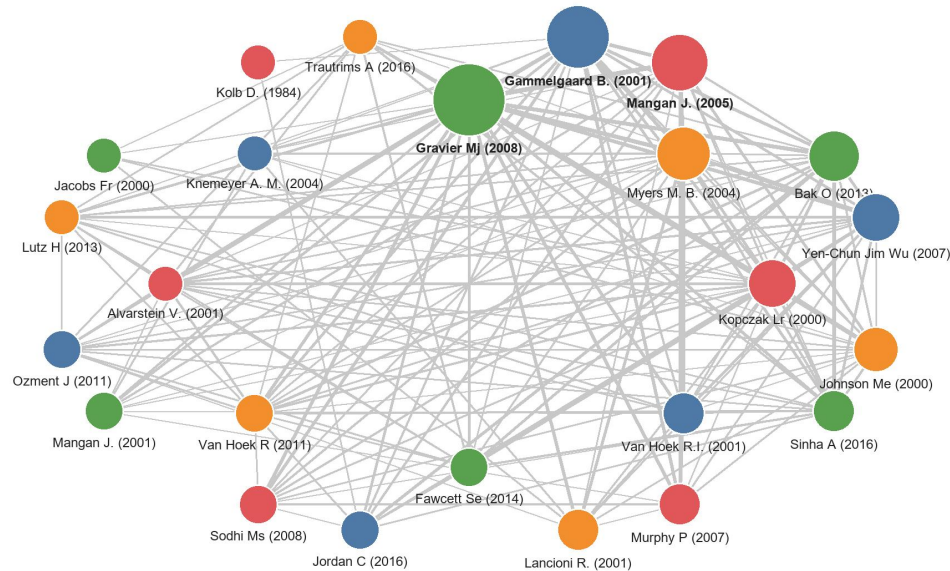
Co-citation Analysis

The co-citation network reveals a compact intellectual core. Gravier and Farris (2008) was the most frequently cited reference in the corpus (17 citing documents), followed by Gammelgaard and Larson

(2001; 14) and Mangan and Christopher (2005; 12). Myers et al. (2004), Bak and Boulocher-Passet (2013), Wu (2007), and early operations-management teaching studies also occupied central positions. Their repeated co-citation indicates that LSCE scholarship has been organized around three linked concerns: defining the logistics profession and its required competencies; designing curricula that remain relevant to industry; and selecting pedagogies that make interdependence and trade-offs visible to learners.

Figure 2

Reference Co-citation Network of Frequently Cited Works



Note. The inclusion threshold was four citations within the screened corpus.

The proximity of curriculum and competency studies to experiential-learning references is theoretically important. It suggests that the field no longer treats curriculum as a list of topics. Instead, curriculum relevance is increasingly understood as the capacity to produce observable decision, collaboration, and systems-thinking capabilities. The foundational cluster therefore continues to support newer technology-enabled pedagogy rather than being displaced by it.

Co-word Analysis

Author keywords reinforce this interpretation. The most frequent terms were logistics education (13), supply chain management (12), higher education (9), educational innovation (6), experiential learning (5), logistics training (4), and serious games (4). Four interpretable communities emerged. The first centers on curriculum, pedagogy, teaching methods, and professional skills. The second links higher education with educational innovation, experiential learning, simulation, and serious games. The third connects supply chain management and logistics management with workforce training and digital skills. The fourth captures sustainability-oriented applications, including humanitarian logistics, urban freight, and engineering education.

Figure 3
Author-Keyword Co-occurrence Network



Note. The minimum author-keyword frequency was two.

Table 3
Interpretive Synthesis of Keyword Communities

Theme	Representative terms	Interpretation
Curriculum and competencies	curriculum; pedagogy; teaching methods; supply chain skills	Alignment of learning outcomes with professional requirements
Experiential and digital pedagogy	experiential learning; simulation; serious games; educational innovation	Authentic, technology-supported learning environments
Workforce and management capability	supply chain management; logistics training; Industry 4.0	Continuous reskilling for digitally transformed operations
Sustainability and societal applications	sustainability; humanitarian logistics; urban freight	Broader environmental and social purposes of LSCE

Theoretical and Practical Implications

The findings support a competency-based view of LSCE. The field's intellectual core combines disciplinary identity, human capital, and curriculum relevance, whereas its recent thematic structure emphasizes learning design. A useful theoretical implication is that technological content and pedagogical technology should be distinguished. Teaching about artificial intelligence, blockchain, analytics, or digital twins does not itself ensure capability; students must also practice problem framing, data interpretation, coordination, and ethical judgment in realistic settings. Experiential learning provides the mechanism through which new technical content becomes professional competence.

For program leaders, the results suggest three priorities. First, curriculum reviews should map industry capabilities to assessable learning outcomes rather than simply add new technology modules (Brockhaus et al., 2023). Second, simulation, serious games, field projects, and industry-sponsored problems should be sequenced across programs so that experiential learning is cumulative. Immersive

tools, including virtual-reality training, should be evaluated by demonstrated learning outcomes rather than novelty alone (Zou et al., 2025). Third, sustainability and humanitarian or urban applications should be integrated with operational analysis, not treated as peripheral electives. Partnerships with employers can provide current data, authentic problems, and feedback on graduate readiness, while universities preserve critical and ethical perspectives that short-term training may overlook.

Conclusion

This bibliometric review maps 67 LSCE articles and reviews published during the twenty complete years from 2006 through 2025. The literature expanded markedly after 2021 and reached its highest annual output in 2024. Its knowledge base remains grounded in curriculum relevance, professional competencies, and the relationship between education and logistics practice. Its emerging agenda is more pedagogically diverse, with strong attention to experiential learning, simulations, serious games, digital skills, and sustainability. These developments indicate a shift from asking what logistics students should know toward examining how educational environments can produce adaptable, systems-oriented professionals.

Limitations and Future Research

The analysis is limited to the SCIE and SSCI components of the Web of Science Core Collection and to English-language metadata available in the export. Manual screening improved topical precision but inevitably involved judgment. Citation counts favor older publications, author keywords are not standardized, and whole counting inflates totals for internationally coauthored work. Future studies should compare WoS and Scopus coverage, conduct sensitivity tests with alternative search strings, and use bibliographic coupling to identify the research front. Content analysis could also evaluate which competencies are assessed, which pedagogies produce measurable learning gains, and whether digital and sustainability-oriented curricula reduce the gap between university preparation and workplace practice.

References

- Bak, O., & Boulocher-Passet, V. (2013). Connecting industry and supply chain management education: Exploring challenges faced in a SCM consultancy module. *Supply Chain Management*, 18(4), 468-479. <https://doi.org/10.1108/SCM-11-2012-0357>
- Baker, D., Briant, S., Hajirasouli, A., Yigitcanlar, T., Paz, A., Bhaskar, A., Corry, P., Whelan, K., Donehue, P., & Parsons, H. (2023). Urban freight logistics and land use planning education: Trends and gaps through the lens of literature. *Transportation Research Interdisciplinary Perspectives*, 17, 100731. <https://doi.org/10.1016/j.trip.2022.100731>
- Brockhaus, S., van Hoek, R., & DeNunzio, S. (2023). Future-proofing supply chain education. *Transportation Journal*, 62(4), 355-368. <https://doi.org/10.5325/transportationj.62.4.0355>
- Foroughi, A. (2021). Supply chain workforce training: Addressing the digital skills gap. *Higher Education, Skills and Work-Based Learning*, 11(3), 683-696. <https://doi.org/10.1108/HESWBL-07-2020-0159>
- Gammelgaard, B., & Larson, P. D. (2001). Logistics skills and competencies for supply chain management. *Journal of Business Logistics*, 22(2), 27-50. <https://doi.org/10.1002/j.2158-1592.2001.tb00002.x>
- Gravier, M. J., & Farris, M. T. (2008). An analysis of logistics pedagogical literature: Past and future trends in curriculum, content, and pedagogy. *The International Journal of Logistics Management*, 19(2), 233-253. <https://doi.org/10.1108/09574090810895979>
- Li, Z., & Jia, X. (2024). Analysis of logistics curriculum and recruitment requirements based on text mining: A case study of China. *SAGE Open*, 14(2), 21582440241239839. <https://doi.org/10.1177/21582440241239839>
- Mangan, J., & Christopher, M. (2005). Management development and the supply chain manager of the future. *The International Journal of Logistics Management*, 16(2), 178-191. <https://doi.org/10.1108/09574090510634494>
- Myers, M. B., Griffith, D. A., Daugherty, P. J., & Lusch, R. F. (2004). Maximizing the human capital equation in logistics: Education, experience, and skills. *Journal of Business Logistics*, 25(1), 211-232. <https://doi.org/10.1002/j.2158-1592.2004.tb00175.x>

- Pacheco-Velazquez, E. (2022). Effects of the use of simulators and an online platform in logistics education. *International Journal on Interactive Design and Manufacturing*, 16(2), 439-457. <https://doi.org/10.1007/s12008-021-00791-z>
- Pacheco-Velazquez, E., Salinas-Navarro, D. E., & Ramirez-Montoya, M. S. (2023). Serious games and experiential learning: Options for engineering education. *International Journal of Serious Games*, 10(3), 3-21. <https://doi.org/10.17083/ijsg.v10i3.593>
- Rosi, M., & Obrecht, M. (2023). Sustainability topics integration in supply chain and logistics higher education: Where is the Middle East? *Sustainability*, 15(8), 6955. <https://doi.org/10.3390/su15086955>
- Sinha, A., Millhiser, W. P., & He, Y. (2016). Matching supply with demand in supply chain management education. *The International Journal of Logistics Management*, 27(3), 837-861. <https://doi.org/10.1108/IJLM-03-2015-0058>
- Sodhi, M. S., Son, B.-G., & Tang, C. S. (2008). ASP, the art and science of practice: Skills employers want from operations research graduates. *Interfaces*, 38(6), 469-479. <https://doi.org/10.1287/inte.1080.0377>
- van Hoek, R. (2011). Logistics education: Achieving market and research driven skill development. *Supply Chain Management*, 16(2), 142-148. <https://doi.org/10.1108/13598541111115383>
- Wu, Y.-C. J. (2007). Contemporary logistics education: An international perspective. *International Journal of Physical Distribution & Logistics Management*, 37(7), 504-528. <https://doi.org/10.1108/09600030710776455>
- Zheng, Y., Zeng, M., Deng, B., Bin, H., Liu, F., & Lin, X. (2024). Topic mining and sentiment analysis based on the online review from MOOC platform's logistics course. *SAGE Open*, 14(4), 21582440241303486. <https://doi.org/10.1177/21582440241303486>
- Zou, Q., Jiang, X., Hu, X., Zheng, W., & Li, D. (2025). Optimizing efficiency for logistics training using virtual reality movies. *Mathematics*, 13(16), 2676. <https://doi.org/10.3390/math13162676>