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Knowing Diversity to Teach Diversity: A Bibliometric Mapping of Teacher Knowledge in Multicultural and Social Studies Education (2000–2025)

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ABSTRACT

Teachers cannot teach diversity well without knowing it, yet research on what teachers know about diversity sits in separate strands of multicultural education, social studies, and teacher education. This study maps that literature to show where it is concentrated, how teacher knowledge has been framed, and where measurement is thin. A bibliometric design combined performance analysis and science mapping of Scopus records published between 2000 and 2025, run in RStudio through the biblioshiny interface of bibliometrix. Of 387 records retrieved, one duplicate was removed and 386 were screened by title, abstract, and keywords against written criteria, which left 141 documents. Output grew from 6 documents in 2000–2009 to 74 in 2020–2025. The corpus drew 2,722 citations across 79 sources and 309 authors, and more than 94% of authors wrote a single document. First authors affiliated with the United States wrote 59.7% of the documents with a known country. Teacher education formed the hub of the keyword network, while teacher knowledge, pedagogical content knowledge, and culturally responsive teaching sat in separate clusters. Shulman's two foundational papers were cited by 34 documents and Ladson-Billings's culturally relevant pedagogy papers by 23, yet only 10 documents cited both, and only two documents reported an instrument built to measure teachers' knowledge of multicultural content. The map exposes a measurement gap and thin links between knowledge frameworks and culturally responsive frameworks. Future work should build case-based instruments for teacher knowledge of diversity and test them outside North America and Western Europe.

KEYWORDS

Teacher knowledge; multicultural education; social studies education; pedagogical content knowledge; bibliometric analysis.

INTRODUCTION

Classrooms in most education systems now hold students who differ in language, religion, ethnicity, migration history, and community knowledge. Whether those differences become resources or sources of exclusion depends partly on what teachers know. Shulman (1986) placed teacher knowledge at the center of teaching quality through the idea of pedagogical content knowledge, and Ball et al. (2008) specified the content knowledge that teaching demands. Both programs ask what a teacher must know, not only what a teacher believes. Multicultural education has often asked a different question. A long line of work measures teacher attitudes, beliefs, and self-reported competence toward diversity, while the knowledge that lets a teacher act on those attitudes has drawn less attention (Dursun et

al., 2021). Recent survey work shows the pattern: Tielman et al. (2022) asked 898 Dutch vocational teachers to rate their own multicultural knowledge, attitudes, and skills, and the knowledge ratings came out neutral.

Social studies offers a second vantage point. Citizenship, history, and civic education require teachers to hold content knowledge about contested pasts and plural societies. Studies in this field describe how preservice teachers meet difficult history, racism, and whiteness (Demoiny & Tirado, 2025) and how teachers build knowledge about immigrant students while teaching citizenship (Dabach & Fones, 2018). Work on culturally responsive and sustaining pedagogy keeps adding frames for what teachers should know, among them culturally responsive pedagogical knowledge for diversified STEM classrooms (Ogodo, 2024), teachers' knowledge and use of culturally relevant education as shaped by school organization (Mathews et al., 2023), and early childhood teachers' dispositions, knowledge, and skills related to diversity, inclusion, equity, and justice (Lang et al., 2024). Research on Indigenous knowledge adds that non-Native teachers face a demanding learning process when they implement Native sovereignty curriculum (Conrad & Hardison-Stevens, 2024), and that prospective teachers in Indonesia hold varied understandings of Indigenous knowledge (Handayani et al., 2022).

Indonesia shows why the question matters. A case study of Indonesian education examined how multicultural values are negotiated inside a centralized system (Afifuddin et al., 2025), and a study of junior high social studies examined multicultural values in learning with an indirect teaching model (Anifah et al., 2022). Both studies center on values and teaching models. Evidence on what teachers know about diversity, as distinct from what they value or do, is harder to find.

Review work has started to organize parts of this territory. Bibliometric studies have mapped multicultural education in international and Indonesian contexts (Sampaleng, 2023) and social studies research in primary schools (Lubis et al., 2026). A scoping review examined pedagogical content knowledge in social studies (Lotivio-Bedural et al., 2019), and a systematic review of culturally responsive teaching in social studies appeared recently (Yamin & Haryanto, 2026). Each work treats multicultural education, social studies, or a single knowledge construct on its own. In the literature located for this study, no bibliometric mapping places teacher knowledge at the center and reads the multicultural and social studies strands together. Without such a map, researchers cannot tell which knowledge constructs dominate, which regions supply the evidence, or how often teacher knowledge is measured instead of described.

This article fills that gap with a bibliometric mapping of Scopus-indexed research on teacher knowledge in multicultural and social studies education from 2000 to 2025. Three questions guide the analysis. RQ1: What are the publication trend, citation profile, and source, author, and country structure of the field? RQ2: Which conceptual and thematic structures organize the field, and how did they shift across four time slices? RQ3: How is teacher knowledge conceptualized and measured, and which research gaps follow? The purpose is to give researchers and teacher educators an evidence-based map of what is known about teacher knowledge of diversity and where new work is needed.

RESEARCH METHODS

Research Design

The study is a bibliometric analysis that uses two families of techniques: performance analysis, which describes productivity and impact, and science mapping, which examines relationships among research constituents (Donthu et al., 2021). Identification and screening are reported with a PRISMA 2020 flow diagram (Page et al., 2021). The diagram is adapted because the study screens records to build a bibliometric corpus and does not

synthesize study outcomes. The procedure had five steps: retrieving records from Scopus, screening them against written criteria, importing the final corpus into biblioshiny, running performance analysis and science mapping, and interpreting the maps with supplementary coding in Python.

Data Source and Retrieval

Scopus was the only database. It supplies author, affiliation, keyword, abstract, and citation fields in one export, which bibliometric analysis requires. The search was run on 22 October 2026 in the title, abstract, and keyword fields with the following string:

```
TITLE-ABS-KEY ( ( "teacher knowledge" OR "pedagogical content knowledge" OR
"knowledge for teaching" OR "content knowledge" OR ( ( teacher* OR educator* ) W/3
knowledge ) ) AND ( "multicultural education" OR multicultural* OR "culturally
responsive" OR "culturally relevant" OR "culturally sustaining" OR "intercultural
education" OR "cultural diversity" OR "diversity education" ) AND ( "social studies"
OR "social science education" OR "social sciences education" OR "civic education" OR
"citizenship education" ) )
```

The string joins three concept blocks: teacher knowledge, multicultural and culturally responsive education, and social studies and civic education. Results were limited to documents published from 2000 to 2025, written in English, and typed as article or conference paper. The search returned 387 records, which were exported as a CSV file with all available fields (374 articles and 13 conference papers). Citation counts are the Scopus values on the export date.

Eligibility Criteria and Screening

Records were screened on title, abstract, and author and index keywords against the criteria in Table 1. The screening used three codes: included, excluded because teacher knowledge was not the analytic focus (EC1), and excluded because the context fell outside multicultural, diversity, or social studies education (EC2). Full texts were not retrieved, so the PRISMA stages for reports sought and assessed for eligibility do not apply. One reviewer screened all records with the assistance of a large language model, and every decision was written to a log with its code. No second reviewer screened independently, so agreement statistics could not be computed. A consistency review after the first pass moved one record from included to excluded (EC1) because its abstract reported effects on teaching practice and did not examine knowledge. Boundary cases, mainly between knowledge and competence or awareness, were settled by asking whether the abstract described what teachers know or understand.

Table 1. Eligibility criteria used for title and abstract screening

Code	Criterion
IC1	Teachers or teacher candidates are the unit of analysis, and their knowledge (content, pedagogical, pedagogical content, of students, of diversity or culture) is an analytic focus, or the document proposes a knowledge base or framework for it.
IC2	The context is multicultural, diverse, equity-oriented, culturally responsive, Indigenous, language minority, immigrant, religious, or racial diversity, or belongs to the social studies family (history, civics, citizenship, global education, economics taught as social studies).
IC3	Article or conference paper in English, published 2000–2025, indexed in Scopus.
EC1	Teacher knowledge is not the analytic focus: student outcomes, curricula, policy, or teacher beliefs, attitudes, or skills without a knowledge component.
EC2	The context lies outside multicultural, diversity, or social studies education (general STEM, technology, language teaching, or school leadership studies without a diversity or social studies link).

Data Analysis

Software and settings. The final corpus was imported as a Scopus CSV file into biblioshiny, the web interface of the R package bibliometrix (Aria & Cuccurullo, 2017). Analyses ran in RStudio 2026.10.0 with R 4.6.1 and bibliometrix 5.5.0. All biblioshiny settings were left at their defaults, except the time slices of the thematic evolution. No thesaurus was applied, so spelling variants such as preservice and pre-service teachers remain separate terms. Pandas in Python handled the screening log, the country and co-cited reference tables, and the dictionary tagging of themes.

Performance analysis. Biblioshiny reported the main information table, annual scientific production, the most relevant sources and authors, the fit of Lotka's law to author productivity, and the most globally cited documents. Country was taken from the affiliation of the first author, and from all author affiliations when counting countries represented. Performance tables use four descriptive periods (2000–2009, 2010–2014, 2015–2019, 2020–2025) and the h-index within the corpus.

Science mapping. Mapping used author keywords, because Scopus supplied index keywords for only three documents, and the cited references listed in each record. The keyword co-occurrence network shows which keywords appear together and forms clusters from those links. The thematic map and the thematic evolution follow the approach of Cobo et al. (2011): keyword clusters are placed on two axes, centrality (links to other clusters) and density (links inside a cluster), which separates motor, basic, niche, and emerging or declining themes, and their continuity is tracked across time slices. Four slices were used, 2000–2015, 2016–2020, 2021–2023, and 2024–2025 (39, 38, 33, and 31 documents), because the first decade holds only six documents and cannot support a map by itself. Trend topics give the median year of frequent keywords. The co-citation network links references that appear together in the same reference list, which shows the works that anchor the field.

Supplementary coding. Co-cited works were counted from the Scopus reference strings by matching titles, which merges name variants such as Shulman L. and Shulman L.S. Themes were tagged by searching titles, abstracts, and keywords with a dictionary of terms for nine themes; one document can carry several tags. Instruments for teacher knowledge were identified by reading the abstracts of the 45 included records whose title, abstract, or keywords mentioned a questionnaire, survey, test, scale, assessment, instrument, or measure. Table 2 lists each analysis, the biblioshiny module that produced it, and the question it serves.

Table 2. Analyses, biblioshiny modules, and research questions

Analysis	Module or tool	Output	Question
Performance indicators	Main information; annual scientific production	Documents, authors, citations, growth by year	RQ1
Sources and authors	Most relevant sources; most relevant authors; Lotka's law	Productivity of journals and authors	RQ1
Most cited documents	Most global cited documents	Citation ranking	RQ1
Countries	Pandas (first author and all affiliations)	Geographic concentration	RQ1
Keyword network	Co-occurrence network (author keywords)	Clusters and hubs	RQ2
Thematic map	Thematic map	Motor, basic, niche, emerging themes	RQ2
Thematic evolution	Thematic evolution (four slices)	Continuity of themes over time	RQ2

Trend topics	Trend topics	Median year of keywords	RQ2
Foundational works	Co-citation network; pandas counts	Anchor works and clusters	RQ3
Themes and instruments	Dictionary tagging; abstract reading	Theme shares; instruments reported	RQ2, RQ3

RESULTS AND DISCUSSION

Screening Outcome

Figure 1 shows the flow of records. Of 387 records, one duplicate was removed. Of the 386 records screened, 245 were excluded: 126 because teacher knowledge was not the analytic focus and 119 because the context fell outside the field. The corpus holds 141 documents (139 articles and 2 conference papers). Only 36.5% of screened records (141 of 386) met the criteria. A search built on knowledge terms pulls in STEM, technology, and reading research, and any replication should expect the same noise.

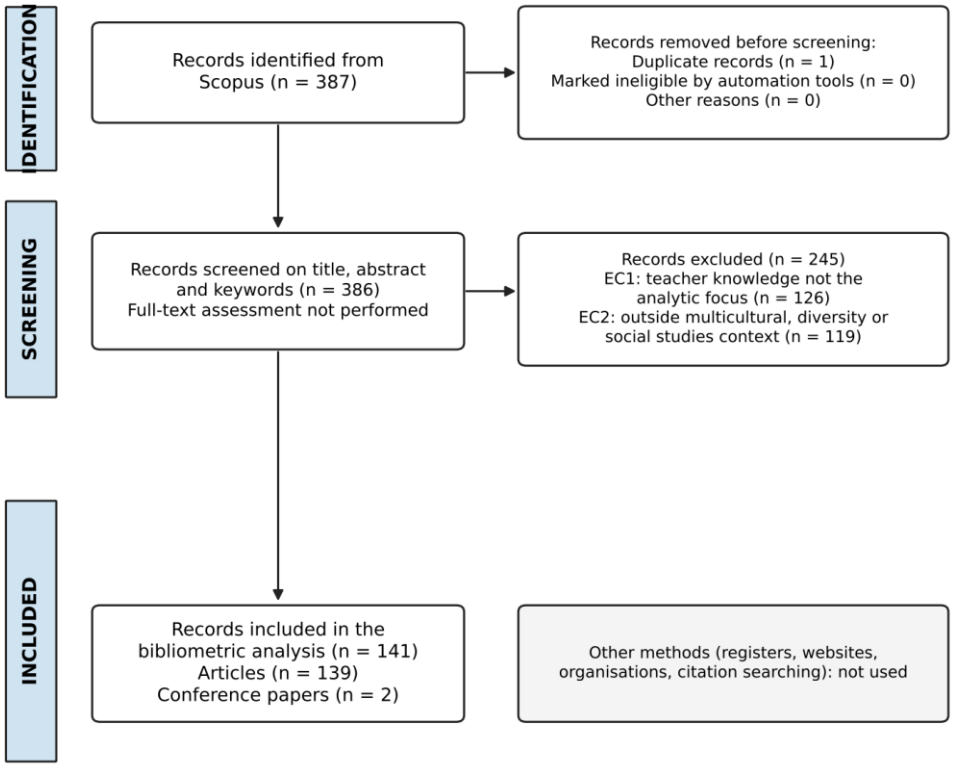


Figure 1. PRISMA 2020 flow diagram of identification and screening (adapted from Page et al., 2021)

Publication Trend and Citation Profile

Output rose across the period (Figure 2, Table 3). Six of the ten years from 2000 to 2009 have no document, and the decade holds 6 documents in total. The corpus contains 27 documents from 2010 to 2014, 34 from 2015 to 2019, and 74 from 2020 to 2025, which is 52.5% of all documents (Table 4). Annual output peaked at 17 documents in 2024. Bibliometrix reports an annual growth rate of 11.13%, but the rate rests on one document in 2000 and fourteen in 2025, so it describes the two endpoints more than a steady trend. The growth partly reflects Scopus coverage and the search design, so it does not prove that interest in teacher knowledge of diversity expanded at the same rate. Citation figures follow the age of documents: mean citations fall from 67.5 for 2000–2009 to 8.1 for 2020–

2025 because recent documents have had little time to be cited.

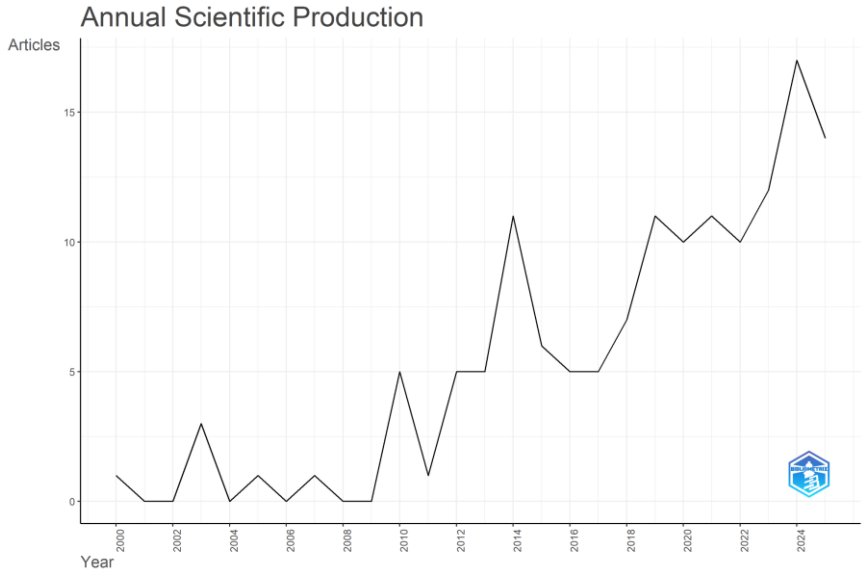


Figure 2. Annual scientific production, 2000–2025 (n = 141; bibliometrix output)

Table 3. Performance indicators of the corpus (n = 141)

Indicator	Value
Documents (articles / conference papers)	141 (139 / 2)
Time span	2000–2025
Annual growth rate (bibliometrix)	11.13%
Document average age	7.3 years
Sources	79 (56 with one document)
Authors	309
Single-authored documents (authors)	46 (42)
Co-authors per document	2.33
International co-authorship	10.64% (15 documents)
Countries represented (all affiliations)	29
Total citations / mean / median	2,722 / 19.3 / 10
h-index within the corpus	28
Author keywords (distinct) / documents with author keywords	427 / 115
Cited references	8,280
Open access documents	42 (29.8%)

Bibliometrix main information, except sources with one document, median citations, h-index, and open access, which were counted from the Scopus export.

Table 4. Output and citations by period

Period	Documents	Share (%)	Citations	Mean citations
2000–2009	6	4.3	405	67.5
2010–2014	27	19.1	796	29.5
2015–2019	34	24.1	922	27.1
2020–2025	74	52.5	599	8.1

Sources, Authors, and Countries

The 141 documents appeared in 79 sources, and 56 of them (70.9%) published a single document (Figure 3). Three social studies journals, the Journal of Social Studies Research, Theory and Research in Social Education, and the Journal of Social Science Education, together carried 27 documents (19.1%). Teaching and Teacher Education has the highest

citation total (439) from eight documents, while the Journal of Social Studies Research leads on volume with 14 documents and 241 citations. Education Sciences published seven documents with 59 citations, six of them in 2024 or 2025.

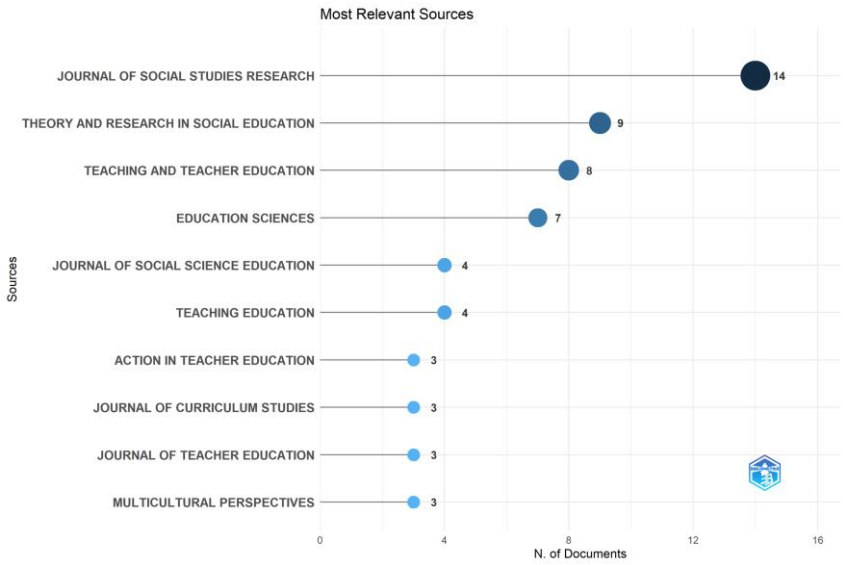


Figure 3. Most relevant sources by number of documents (bibliometrix)

Authorship is highly dispersed. Of 309 authors, more than 94% appear once, and no author has more than three documents (Vickery, Salinas, and Everington have three each; Figure 4). The Lotka fit (Figure 5) gives an exponent of 4.19, steeper than the classical value of 2 because so many authors appear once, although the Kolmogorov-Smirnov test does not reject an exponent of 2 ($p = 0.518$), and a fit across only three productivity levels carries little weight. The field has no core group of authors with sustained programs on teacher knowledge of diversity. A reading consistent with this pattern is that many studies are one-off cases written by teacher educators about their own courses, though the data here cannot test that explanation. Single-authored documents number 46 (32.6%), and 15 documents (10.64%) have authors from more than one country.

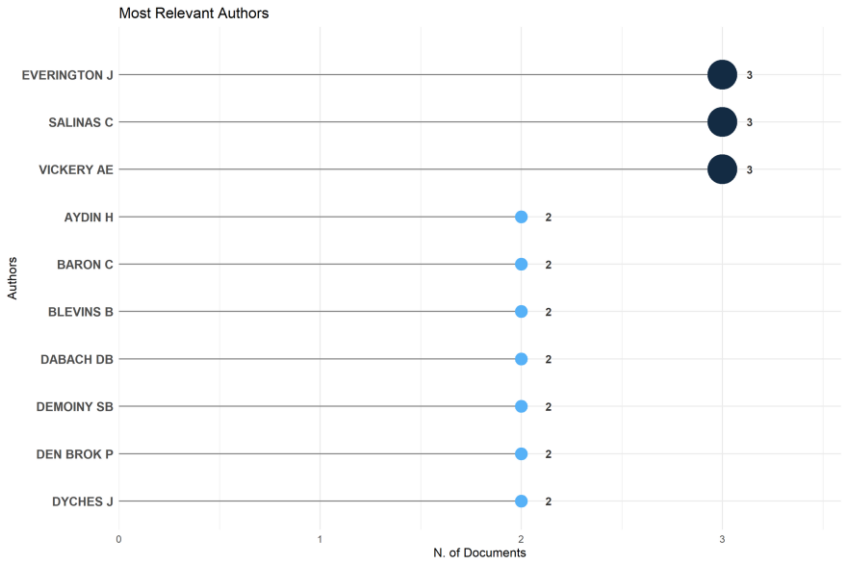


Figure 4. Most relevant authors by number of documents (bibliometrix)

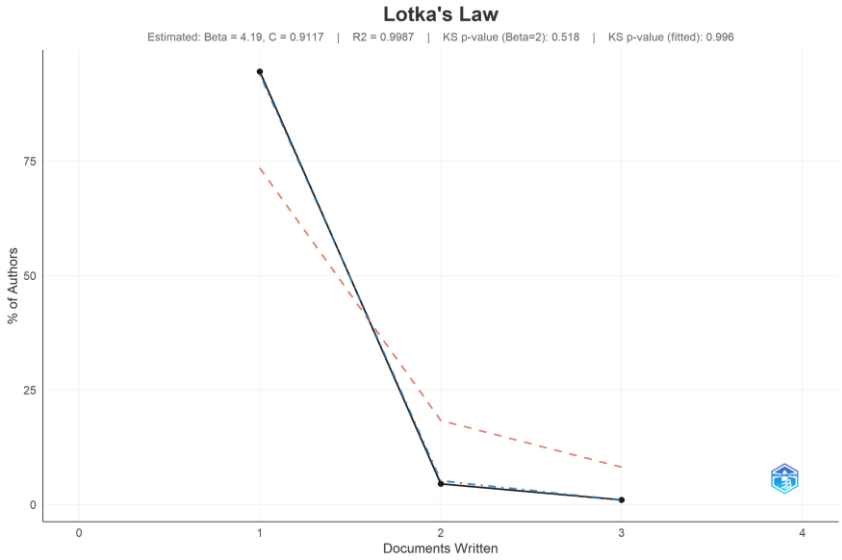


Figure 5. Lotka's law fit for author productivity (bibliometrix)

The first author was affiliated with the United States in 83 of the 139 documents with a known country (59.7%) (Figure 6, Table 5). Canada, Turkey, Indonesia, and the Netherlands contributed six documents each. Counting every author affiliation (324 in all), the United States accounts for 186 (57.4%), followed by Indonesia (23), the Netherlands (17), Canada (14), Turkey (13), and Malaysia (12). Indonesia and Malaysia together contributed nine documents as first-author country (6.5%). The six Indonesian documents deal with ethnoconstructivism in social affairs teaching, teachers' Indigenous knowledge and cultural competencies, TPACK in social studies learning management, religious moderation in primary education, prospective teachers' understanding of Indigenous knowledge in physics teacher education, and a lesson study on building an Indigenous learning community among science teachers. None of their abstracts describes an instrument built to measure teacher knowledge of diversity.

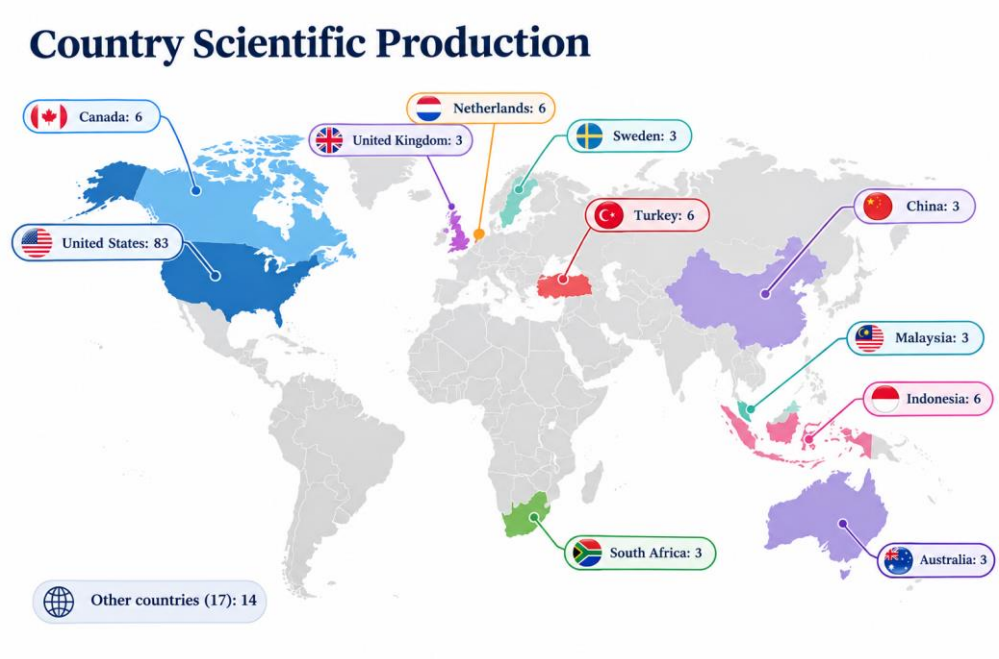


Figure 6. Country scientific production by first-author affiliation (n = 139 documents with a known country; other countries: 17 countries, 14 documents)

Table 5. Countries by first-author affiliation and by author affiliation

Country	First-author documents	Share of 139 (%)	Author affiliations (n = 324)
United States	83	59.7	186
Indonesia	6	4.3	23
Netherlands	6	4.3	17
Canada	6	4.3	14
Turkey	6	4.3	13
Malaysia	3	2.2	12
China	3	2.2	7
South Africa	3	2.2	6
United Kingdom	3	2.2	5
Australia	3	2.2	4
Sweden	3	2.2	3
Other countries (17)	14	10.1	34

Two documents have no affiliation data and are left out of the first-author column.

Most Cited Documents

Citations are concentrated. The ten most cited documents hold 1,087 of the 2,722 citations (39.9%), and Merryfield (2000) alone holds 293 (Figure 7). The mean of 19.3 sits well above the median of 10, which signals a long tail of rarely cited work. The most cited items fall into two groups. One group builds knowledge frames for teaching diverse learners: knowledge domains for teaching in a globalized world (Goodwin, 2010), disciplinary linguistic knowledge for teaching English language learners (Turkan et al., 2014), and social justice pedagogical and content knowledge (Dyches & Boyd, 2017). The other group reports how teachers or candidates experience diversity and citizenship: lived experiences in becoming multicultural and global educators (Merryfield, 2000), African American women teachers and citizenship (Vickery, 2015, 2017), critical historical thinking (Salinas et al., 2012), and international field experiences (Malewski et al., 2012). The list also holds a study of social studies teachers' scaffolding knowledge (Van de Pol et al., 2012), which meets the social studies criterion but carries no diversity theme. Frameworks published after 2020 have had too little time to compete with these citation counts.

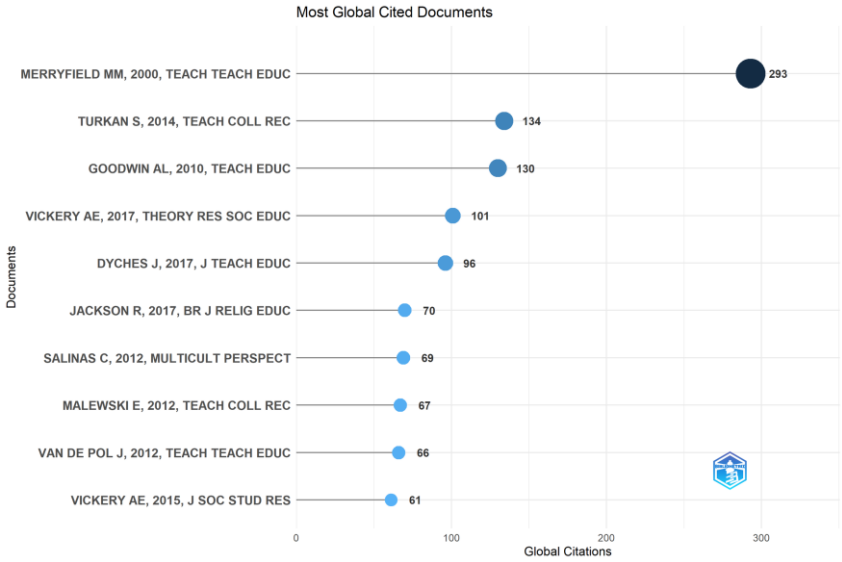


Figure 7. Most globally cited documents (bibliometrix; Scopus citation counts on the export date)

Keyword Structure

Author keywords were available for 115 of 141 documents (81.6%), and 427 distinct keywords appear, so the vocabulary is widely scattered. Teacher education was the most frequent keyword (26 documents), followed by social studies (11), teacher knowledge (9), pedagogical content knowledge (8), professional development (6), and curriculum, citizenship education, and preservice teachers (5 each). Counts follow the keywords as supplied, so spelling variants split: preservice teachers (5) and pre-service teachers (4) are separate terms. Teacher knowledge appears verbatim as an author keyword in only 9 documents (6.4% of the corpus). Authors who study what teachers know usually index their work under teacher education, pedagogical content knowledge, competence, awareness, or understanding. This fragmentation of vocabulary makes the literature harder to find and to cite as one field.

The keyword co-occurrence network shows 24 connected keywords in eight clusters (Figure 8). Teacher education is by far the largest node and acts as the hub. The red cluster around it joins social studies, preservice teachers, critical pedagogy, multicultural education, social justice, and global competence, and the thickest link in the network runs between teacher education and social studies. Teacher knowledge does not sit in that cluster. It forms a blue cluster with curriculum and preservice teacher education, tied to the hub by the second thickest link. Pedagogical content knowledge forms a green pair with history teaching that is drawn without a link to the hub, and culturally responsive teaching sits with cultural competency terms in a brown cluster tied to the hub by one thin line. Smaller clusters join diversity and equity, race and Black history, democracy and citizenship, and the generic terms knowledge, education, and teaching. Two readings follow. Teacher knowledge and multicultural education fall in different clusters, and the pedagogical content knowledge cluster stays apart from the culturally responsive cluster, which fits the view that knowledge frameworks and culturally responsive frameworks have developed in parallel. The small clusters also show how thinly the field is connected, so the clusters describe tendencies and should not be read as separate subfields.

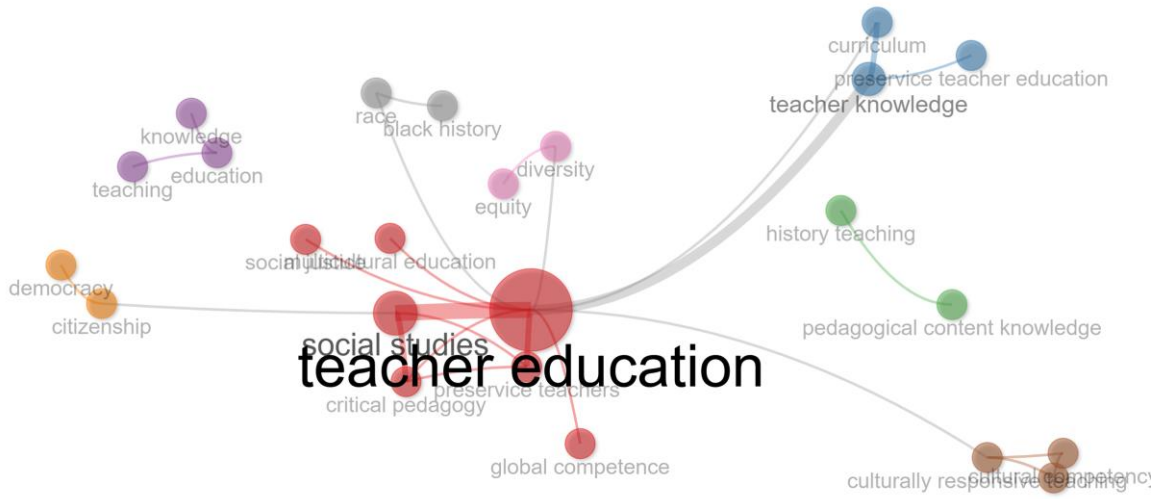


Figure 8. Keyword co-occurrence network of author keywords (bibliometrix; node size reflects frequency, colors mark clusters)

Themes and Shifts Across Time

The thematic map places keyword clusters by centrality, the strength of their links to other clusters, and density, the strength of links inside a cluster (Figure 9). Three clusters fall in the motor quadrant. The largest joins teacher education, global education, and multicultural

education. The second joins teacher knowledge, curriculum, and preservice teacher education, and the third joins pedagogical content knowledge, professional development, and culturally responsive teaching. Teacher knowledge sits just above the density threshold and the pedagogical content knowledge cluster just beyond the centrality threshold, so both placements are fragile and could move with a different keyword selection. Social studies with critical pedagogy and citizenship, education with social justice and knowledge, and preservice teachers with diversity and equity are basic themes, central to the field but less developed. Black history, race, and social studies education, citizenship education with social sciences, and democracy with teacher preparation are niche themes. Controversial public issues, cultural diversity, and pre-service teachers fall in the emerging or declining quadrant, and the last of these is a spelling variant of the larger preservice teachers term, which shows the effect of unmerged keywords.

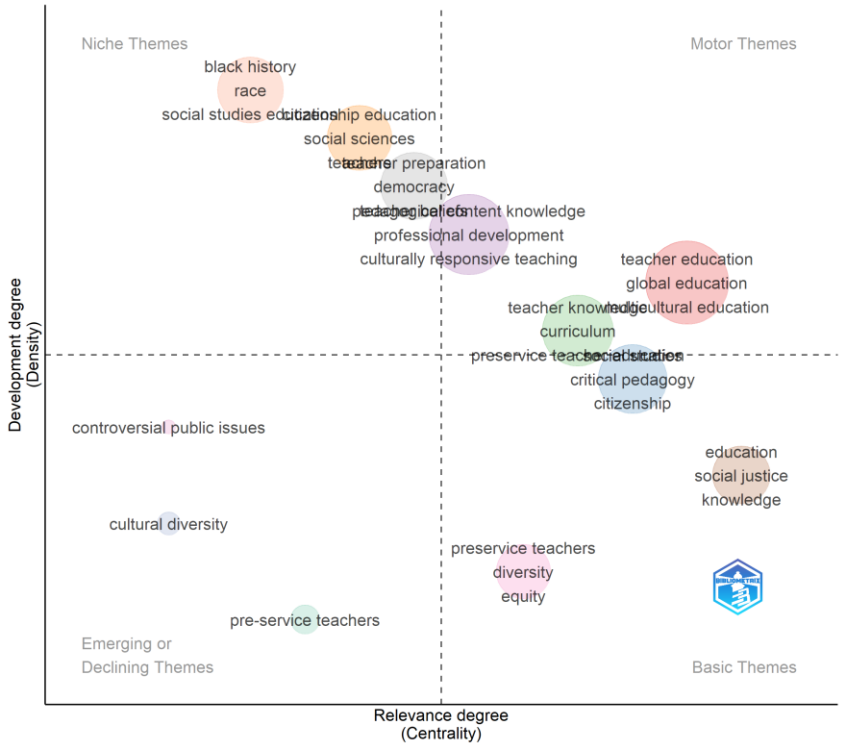


Figure 9. Thematic map of author keywords, 2000–2025 (bibliometrix; bubble size reflects keyword occurrences)

The four time slices show how the map changed (Figures 10 and 11). Teacher education heads a cluster in every slice. It sits at the border of motor and basic themes in 2000–2015, together with teacher knowledge and mentoring, and it is a motor theme in the three later slices. Teacher knowledge appears among the cluster labels in the first three slices and not in the last. In 2016–2020 it stands alone in the emerging or declining quadrant, while the motor themes are racism and Black history, citizenship education, and teacher education with social studies and critical pedagogy. In 2021–2023 it joins curriculum in a niche cluster, and culturally sustaining pedagogy, culturally responsive teaching, and TPACK form a niche cluster of their own. In 2024–2025 teacher education with preservice teachers and diversity is the motor theme, professional development with culturally responsive teaching and technology is a basic theme, and Indigenous education with teacher learning is niche. Pedagogical content knowledge moves from the motor quadrant in 2000–2015, with history teaching and global education, to the emerging or declining quadrant in 2016–2020, with historical thinking, and it is absent from the later cluster labels. The flows in

Figure 10 link the teacher education cluster of 2000–2015 to that of 2016–2020, and the teacher knowledge cluster of 2016–2020 to the culturally sustaining pedagogy cluster of 2021–2023, which suggests that keywords once indexed under teacher knowledge later appear under culturally sustaining frames.

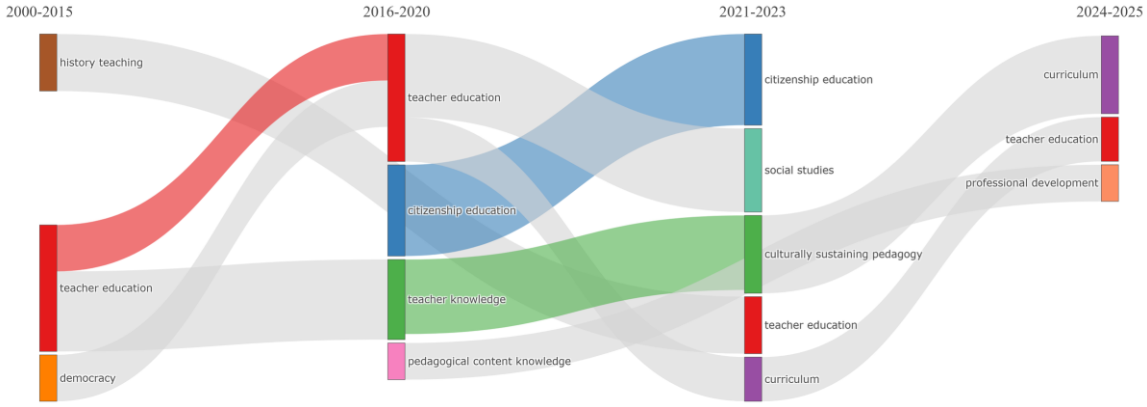


Figure 10. Thematic evolution of author keywords across four time slices (bibliometrix)

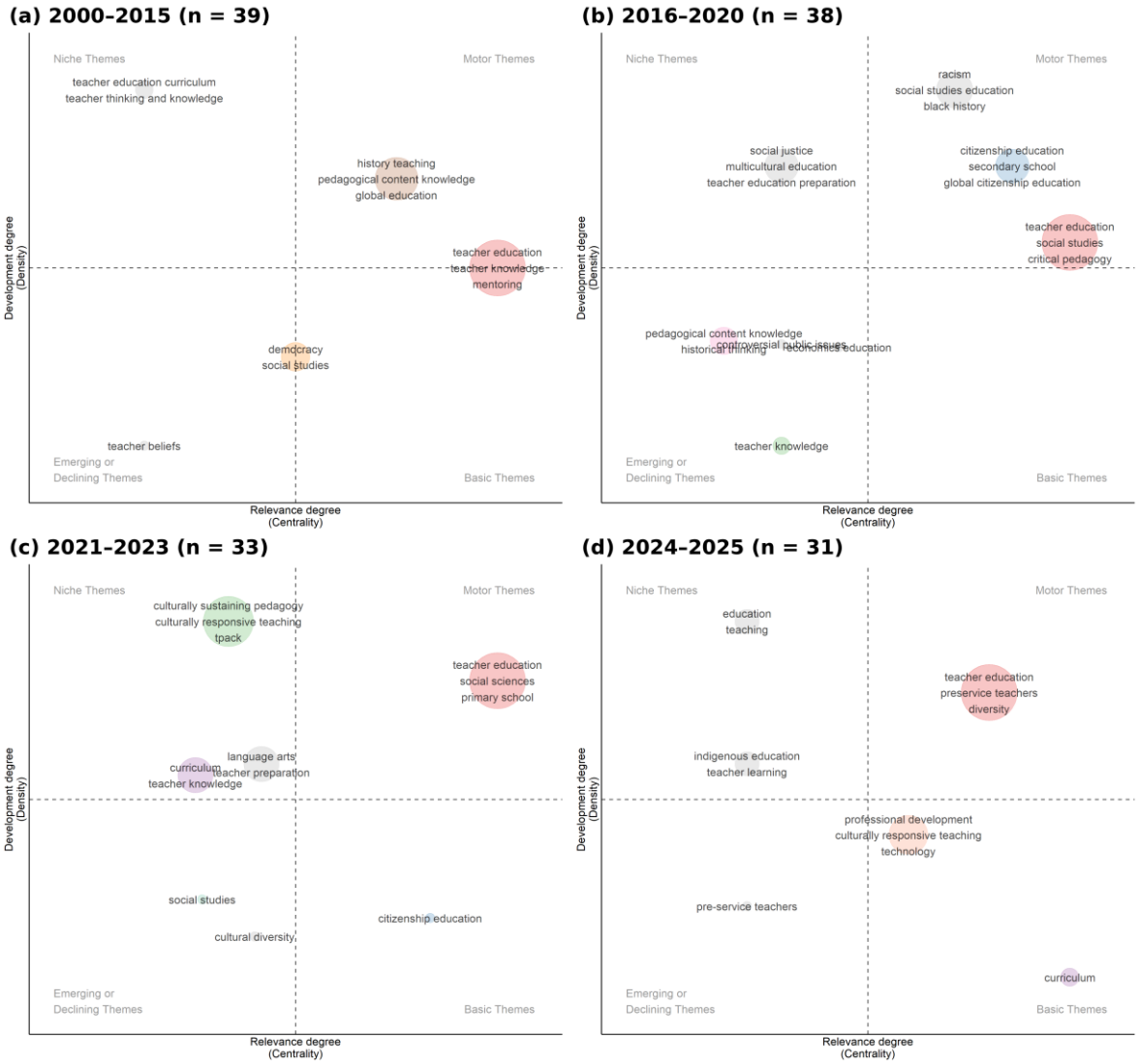


Figure 11. Thematic maps of author keywords in the four time slices: (a) 2000–2015, n = 39; (b) 2016–2020, n = 38; (c) 2021–2023, n = 33; (d) 2024–2025, n = 31 (bibliometrix)

Trend topics point the same way (Figure 12). Teacher education, teacher knowledge, social studies, and pedagogical content knowledge have median publication years of 2019, 2019, 2019, and 2018, education 2021, and preservice teachers, curriculum, and professional development 2024. Teacher knowledge and pedagogical content knowledge have the longest histories, with first-quartile years of 2014, while the 2024 terms point to a recent turn toward preparation and professional learning.

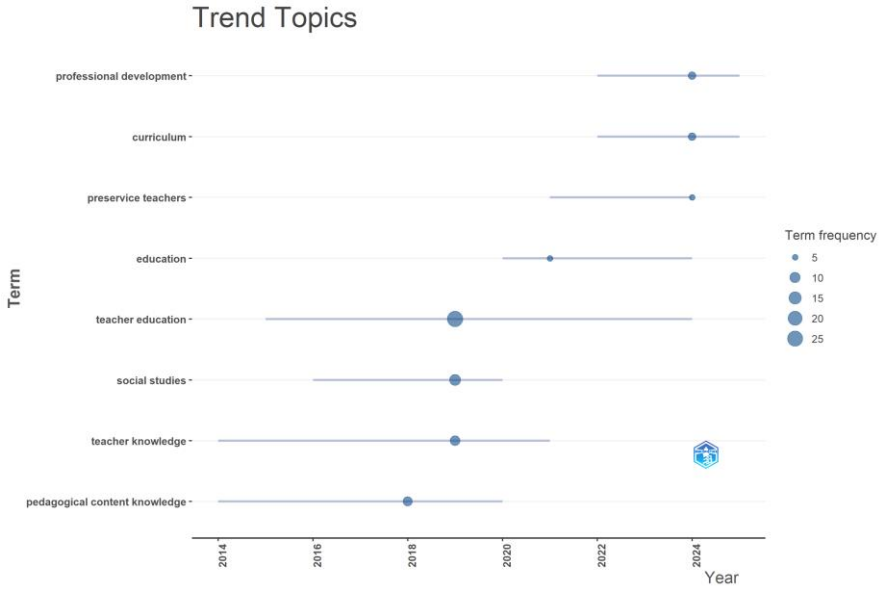


Figure 12. Trend topics of author keywords (bibliometrix; bars mark the first to third quartile of publication years, dots the median)

Dictionary tagging shows which topics the corpus covers (Table 6). Citizenship, civics, and global education appear in 38 documents (27.0%) and history teaching in 36 (25.5%), which reflects the social studies half of the field. Race, racism, and social justice appear in 28 documents (19.9%), pedagogical content knowledge and its variants in 26 (18.4%), and culturally responsive and sustaining pedagogy together with funds of knowledge in 19 (13.5%). Language and English language learners (16), Indigenous knowledge (12), immigrant and refugee students (12), and religion (8) follow.

Counts alone mislead because the 2020–2025 period holds more than half of the documents, so Table 6 reports counts with each period's share. Culturally responsive, sustaining, and funds of knowledge frames show the clearest shift: 3 of 67 documents before 2020 (4.5%) and 16 of 74 since 2020 (21.6%), which agrees with the first appearance of culturally sustaining pedagogy as a cluster in 2021–2023. Pedagogical content knowledge holds a similar share in the two eras (12 of 67, 17.9%, and 14 of 74, 18.9%), and race and social justice also stay stable (14 of 67, 20.9%, and 14 of 74, 18.9%). The recent rise of culturally responsive and sustaining frames fits the spread of Indigenous-led education mandates that Conrad and Hardison-Stevens (2024) note, but the corpus cannot establish that policy caused the shift.

Table 6. Theme tags in the corpus: documents (% of period) by period

Theme	All (n=141)	2000–09 (n=6)	2010–14 (n=27)	2015–19 (n=34)	2020–25 (n=74)
Citizenship, civics, global education	38 (27.0)	2 (33)	10 (37)	11 (32)	15 (20)
History and difficult history	36 (25.5)	1 (17)	8 (30)	12 (35)	15 (20)
Race, racism, social justice	28 (19.9)	2 (33)	2 (7)	10 (29)	14 (19)

Pedagogical content knowledge variants	26 (18.4)	1 (17)	3 (11)	8 (24)	14 (19)
Culturally responsive/sustaining, funds of knowledge	19 (13.5)	2 (33)	0 (0)	1 (3)	16 (22)
Language, English language learners	16 (11.3)	0 (0)	4 (15)	2 (6)	10 (14)
Indigenous knowledge	12 (8.5)	1 (17)	1 (4)	2 (6)	8 (11)
Immigrant, refugee students	12 (8.5)	0 (0)	2 (7)	2 (6)	8 (11)
Religion	8 (5.7)	1 (17)	2 (7)	2 (6)	3 (4)

Tags are not exclusive. Percentages for the "All" column are shares of 141 documents.

How teacher knowledge is conceptualized and measured

The corpus uses many names for what teachers need to know, and they rarely connect. Pedagogical content knowledge appears in 26 documents, and its variants include social justice pedagogical and content knowledge (Dyches & Boyd, 2017), diversity pedagogical content knowledge (Dursun et al., 2021), disciplinary linguistic knowledge (Turkan et al., 2014), and culturally responsive pedagogical knowledge (Ogodo, 2024). Other studies speak of knowledge of students' socio-economic and socio-cultural backgrounds (Noh, 2023), teachers' knowledge and use of culturally relevant education (Mathews et al., 2023), or dispositions, knowledge, and skills as one bundle (Lang et al., 2024). Reference lists show how far these names share an anchor.

Co-citation shows where the anchors lie (Figure 13, Table 7). Shulman (1986) is cited by 24 documents (17.0%) and Shulman (1987) by 22 (15.6%), and 34 documents cite at least one of the two. Ball et al. (2008) is cited by 13 documents. Ladson-Billings (1995) is cited by 14, and 23 documents cite at least one of her three culturally relevant pedagogy papers. The citing documents differ by era. Of 67 documents published before 2020, 20 (29.9%) cite a Shulman paper and 4 (6.0%) cite a Ladson-Billings paper, whereas of 74 documents since 2020, 14 (18.9%) cite Shulman and 19 (25.7%) cite Ladson-Billings. Only 10 documents cite both. The co-citation network shows the same split. Shulman's papers form the red and purple clusters, the culturally relevant and sustaining pedagogy works of Ladson-Billings, Gay, and Paris form the blue and orange clusters, and history and civic education works by Barton and Levstik, Hess, and Epstein form a green cluster, with thin links between them. Qualitative methods books by Lincoln and Guba, Merriam, Miles, and Charmaz appear among the co-cited items, which fits the dominance of qualitative designs reported below. Scopus lists Shulman (1986) under two name formats, so the network draws two nodes for one work and divides its weight.

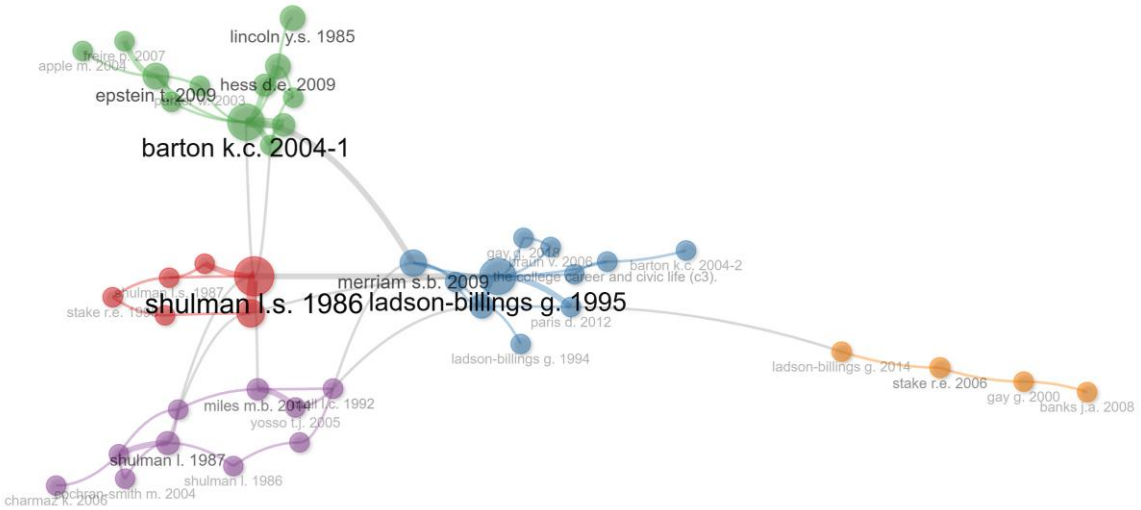


Figure 13. Co-citation network of cited references (bibliometrix; node size reflects co-citation frequency, colors mark clusters)

Table 7. Most co-cited works in the reference lists of the corpus

Work as indexed in Scopus	Documents citing	Share of 141 (%)
Shulman, Those who understand: Knowledge growth in teaching, 1986.	24	17.0
Shulman, Knowledge and teaching: Foundations of the new reform, 1987.	22	15.6
Barton and Levstik, Teaching history for the common good, 2004.	18	12.8
Ladson-Billings, Toward a theory of culturally relevant pedagogy, 1995.	14	9.9
Ball, Thames, and Phelps, Content knowledge for teaching: What makes-it special?, 2008.	13	9.2
Moll et al., Funds of knowledge for teaching, 1992.	13	9.2
Lincoln and Guba, Naturalistic inquiry, 1985.	12	8.5
Parker, Teaching democracy: Unity and diversity in public life, 2003.	11	7.8

Counts are documents whose Scopus reference list contains the work, matched by title so that name variants are merged. Works are listed as indexed.

Qualitative designs dominate. Search terms for qualitative methods appear in 82 documents (58.2%) and those for quantitative methods in 32 (22.7%), and 35 documents are reviews or conceptual pieces by the same dictionary approach. Reading the abstracts of the 45 records that mention a test, scale, or assessment shows how few build a tool for teacher knowledge of diversity. Only two documents state that they developed one. Dursun et al. (2021) built a performance-based assessment of ethnocultural diversity knowledge and applied it to 819 preservice teachers in six programmes in Flanders, where knowledge was low and varied by programme. Toraman et al. (2015) developed a concept map for primary teachers' knowledge of democracy and multicultural education, together with an attitude scale, and piloted both with 130 teachers in Turkey. Other documents measure knowledge in adjacent domains or by self-report: Taş and Minaz (2021) used a classroom management knowledge test with 62 teachers who had refugee students and reported low knowledge, Sianturi and Suryani (2025) gave a 30-item mathematics content test to 150 preservice teachers, 58 of them Indigenous West Papuans, and found scores not exceeding 50, and Tielman et al. (2022) relied on self-rated knowledge. The three studies that report knowledge scores describe low levels. Three studies cannot settle whether teacher knowledge of diversity is generally low, but they show what direct assessment can reveal and what self-report and interviews leave hidden.

A caution applies to any move toward testing. Haukanes (2024), writing in a study of Norwegian preservice teachers, argues that understanding democratic citizenship mainly as individual knowledge is problematic in teacher education. Conrad and Hardison-Stevens (2024) show that learning to teach Native sovereignty curriculum is a process with several themes and distinct trajectories. Knowledge about diversity is partly situated in judgement and relationships. Instruments built on recall of definitions would miss that part, which is why case-based and performance-based tasks such as the one in Dursun et al. (2021) are the more defensible model.

Research Gaps and Agenda

Five gaps follow from the map (Table 8). The strongest is measurement, since two of 141 documents report an instrument for teacher knowledge of diversity. The second is geography. US-affiliated first authors wrote 59.7% of documents, and the nine documents from Indonesia and Malaysia leave Southeast Asian multicultural settings, with their ethnic, religious, and Indigenous diversity, thinly covered. The third is the split between strands: 59 documents carry social studies terms and 79 carry diversity terms, but only 21 (14.9%) carry both, and only 10 documents cite both Shulman and Ladson-Billings. The fourth is conceptual fragmentation, described above. The fifth concerns who is studied. Documents that refer to preservice or teacher education settings (79) outnumber those that

refer to in-service, novice, or professional development settings (32), and early childhood appears in only six, so what practicing and primary teachers know remains less documented.

Table 8. Research gaps and directions suggested by the map

Gap	Evidence in this map	Direction
Measurement	Two of 141 documents report an instrument for teacher knowledge of diversity.	Develop and validate case-based instruments with reliability and construct evidence.
Geography	US first authors wrote 59.7% of documents; Indonesia and Malaysia nine.	Study knowledge of local ethnic, religious, and Indigenous diversity in Southeast Asia.
Split strands	Only 21 documents (14.9%) combine social studies and diversity terms; 10 cite both Shulman and Ladson-Billings.	Link social studies content knowledge with diversity knowledge in one framework.
Fragmented constructs	Many named variants of pedagogical content knowledge; teacher knowledge is a keyword in 9 documents.	Specify domains and test whether they differ empirically.
Who is studied	Preservice settings 79 versus in-service settings 32; early childhood six.	Assess practicing and primary teachers, and compare across career stages.

Limitations

Six limits qualify the findings. First, Scopus is the only database, and its coverage favors English-language and North American journals, so Indonesian-language and Sinta-indexed literature is absent; this matters for the Indonesian reading of the gaps. Second, the corpus depends on the search string, and a precision of 36.5% shows that the string drew many off-target records. Third, screening used title, abstract, and keywords only, by one reviewer assisted by a language model and without a second reviewer, so boundary decisions between knowledge and competence or awareness may differ from another team's. The screening log is supplied with the manuscript so that readers can audit each decision. Fourth, the keyword maps use author keywords as supplied, so spelling variants split nodes, 26 documents without author keywords are absent from them, and most keywords occur in only a handful of documents. Clusters close to the centrality and density thresholds are fragile, and the networks show tendencies. Dictionary tagging is also approximate, and tag counts can include documents that mention a term in passing. Fifth, co-citation counts come from Scopus reference strings, which list one work under several name formats. Sixth, citation counts are a snapshot on the export date, and subgroup counts, such as the two instrument studies, are small.

CONCLUSION

The map of 141 Scopus documents shows a field that is growing, dispersed, and concentrated in the United States. Teacher knowledge of diversity is studied under many names, mostly through qualitative designs, and only two documents report an instrument built to measure it. Social studies and multicultural education run as parallel conversations, with 14.9% of documents joining the two vocabularies, and the foundational works on teacher knowledge and on culturally relevant pedagogy are co-cited in only 10 documents. Culturally responsive and sustaining frames have entered the literature mainly since 2020.

Three implications follow. Researchers should name and define the knowledge construct they study and index it with teacher knowledge as a keyword so that the literature can be found as one field. Teacher educators should treat self-report as a first step and add case-

based assessment of what candidates know about the diversity of their classrooms and communities. Researchers in Southeast Asia have an open field in developing and validating instruments for local settings. Future work should extend the search to other databases and languages, screen with two independent reviewers, and read full texts to check how the foundational theories are used.

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