Shodh Sari-An International Multidisciplinary Journal

2025, Vol. 04, Issue 04, 224-236
ISSN: 2959-1376
DOI: https://doi.org/10.59231/SARI7877

A Bibliographic Couplings Analysis of Research papers Published on Tech-Driven pedagogy as reflected in the Web of Science

Kiruba, A.[1], Sasikala, P.[2] and Raj, M. Antony[3]

[1]Assistant Professor in Education, St. Xavier's College of Education (Autonomous), Palayamkottai

[2]Assistant Professor in Computer Science, St. Xavier's College of Education (Autonomous), Palayamkottai

[3]Principal, St. Xavier's College of Education (Autonomous), Palayamkottai

Abstract

This study examines the landscape of research papers on tech-driven pedago P. gy as indexed in the Web of Science. A bibliometric approach was employed to analyze publication trends, citation impact, and collaborative networks. In this study, the researcher uses metric analysis to quantify and identify the number of contributions made by academics working in the field of tech-driven pedagogy that were published on the Web of Science database between 1999 and 2024. The results reveal a study growth of technology-integrated teaching and learning practices. Prominent themes include e-learning, digital tools, blended learning, and virtual learning environments. Citation patterns indicate growing global interest and interdisciplinary engagement in pedagogical innovation. The Bibexcel software was used to interpret the data, and Microsoft Excel was used to tabulate the results. The findings showed that between 1999 and 2024, 100 publications were published. The study looks at international relations and discovers several Institutions, Languages, Countries, and types of documents and the Web of Science category highlights the enhanced learning resulting from research on tech-driven pedagogy and using keyword analysis to pinpoint recurrent themes in the field. The study underscores the transformative role of technology in shaping modern education.

Keywords: Tech-driven pedagogy, E-Learning, digital integrated teaching.

@2025 International Council for Education Research and Training
ISSN: 2959-1376
2025, Vol. 04, Issue 04, 224-236
DOI: https://doi.org/10.59231/SARI7877

Review of related literature:

The study "When Technologies Drive Pedagogy Learning and Teacher Training" was carried out by B. P. Marques, M. Cardoso, and R. M. Reis (2020). In order to create new applications, teaching strategies, and teacher preparation, as well as to encourage technological innovation in educational institutions and validate their quality, it is possible to challenge the conventional models of learning and the development of pedagogical gadgets. F. B. Blanco (2023). A Case Study of Technology-Driven Pedagogy in a Legal Education Course. The Journal of Educational Technology published by i-manager. The purpose of this study is to investigate the advantages of raising students' awareness in a legal education class through the use of technology-driven pedagogy. According to the study's findings, using technology-driven pedagogy improves legal education students' learning, makes the classroom more engaging, and highlights how important a strong internet infrastructure and support are to successful classroom instruction. In their study, Rooney, D., and Nyström (2018), S. examined simulation as a complex educational environment. According to the Australasian Journal of Educational Technology, simulation is a methodology that has been extensively employed in several educational contexts. The unique materiality of the locations in question as well as the human activities they inspire are both carefully considered in this study. This dual focus opens up new avenues for the development of simulation pedagogies and allows for the examination of spatial inequities. A. Yürekli Kaynardağ (2017) investigated the significance of pedagogy in higher education. Higher Education Studies, in order to raise the standard of instruction and learning in higher education institutions, instructors' pedagogical competencies are essential. G. Badley. (2000). Reported a study with a focus on three essential aspects of classroom pedagogy—delivery (content provision and facilitation), communication, and assessment—this study investigates how instructors' pedagogical competencies impact students' perspectives. The ratings of items pertaining to the communication dimension show the findings of the biggest discrepancy. Liquid and solid learning are two metaphors for pedagogy and creativity in the digital age, according to Das, S. (2012). International Innovations in Education and Teaching as a component of a higher education (HE) belief. The purpose of

@2025 International Council for Education Research and Training
ISSN: 2959-1376
2025, Vol. 04, Issue 04, 224-236
DOI: https://doi.org/10.59231/SARI7877

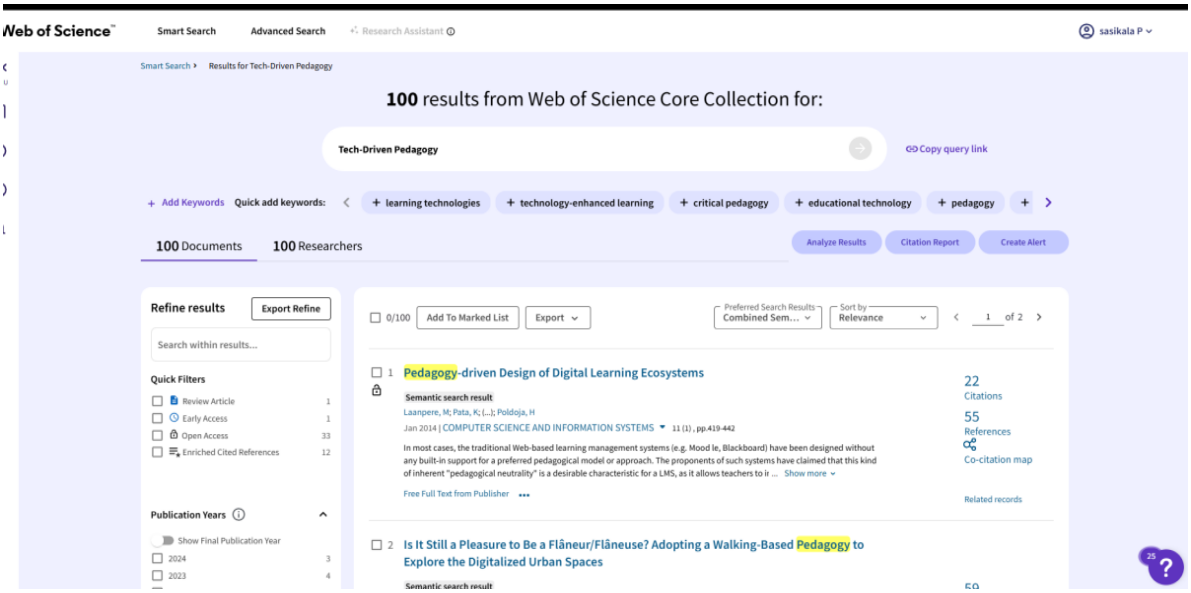
this essay is to explore pertinent research and literature on creativity, discuss how it relates to technology in the learning setting, and use a "Big C" to analyse "liquid learning." The paper suggests a hybrid "liquid" and "solid" approach to creativity that is socially beneficial, arguing that liquid learning, while significant, is not a cure-all for creativity in higher education.

Objectives of Study:

- To find out the year-wise distribution of tech-driven pedagogy.
- To find out the top 25 institutions to publish Tech-driven pedagogy articles.
- To identify the language-wise distribution of records of tech-driven pedagogy in the Web of Science database.
- To determine the document type-wise distribution of the tech-driven pedagogy articles in the Web of Science database.
- To identify the country-wise distribution of publications in the tech-driven pedagogy in the Web of Science database.

Methodology:

For this study, 100 tech-driven pedagogy-related bibliographic documents from the Web of Science database from 1999 to 2025 were examined. Bibexcel software was utilized for data analysis of the results of the bibliographic investigation. Subsequently, the data were saved as text files and loaded into both Bibexcel and Microsoft Excel for careful arrangements, comprehensive examination, and the production of educational tables and charts for the final report.



@2025 International Council for Education Research and Training
ISSN: 2959-1376
2025, Vol. 04, Issue 04, 224-236
DOI: https://doi.org/10.59231/SARI7877

Table 1

Year-wise distribution of tech-driven pedagogy

S.No	Publication years	Record count	Citation	% out of 100
1	2024	3	214	3
2	2023	4	216	4
3	2022	8	207	8
4	2021	9	213	9
5	2020	7	174	7
6	2019	7	145	7
7	2018	4	128	4
8	2017	4	156	4
9	2016	8	112	8
10	2015	3	138	3
11	2014	6	92	6
12	2013	5	69	5
13	2012	4	46	4
14	2011	2	48	2
15	2010	4	23	4
16	2009	4	25	4
17	2007	0	22	0
18	2008	2	14	2
19	2006	1	11	1
20	2005	3	12	3
21	2004	3	4	3
22	2003	3	4	3
23	2002	1	6	1
24	2001	1	1	1

@2025 International Council for Education Research and Training
ISSN: 2959-1376
2025, Vol. 04, Issue 04, 224-236
DOI: https://doi.org/10.59231/SARI7877

25	2000	1	3	1
26	1999	1	1	1

Table 1 is the distribution of research productivity in the field of tech-driven pedagogy from 1999 to 2024. Across the past twenty-five years, there were 100 research outputs on tech-driven pedagogy. 2023 yielded the highest number of outputs with 9 (9%), while 1999 - 2024 yielded the lowest number of 1 output (1%) out of the 100 records. Reference and H-Index The year 2023 had the highest citation score of 216 and the highest h-index for the study period was 2021.

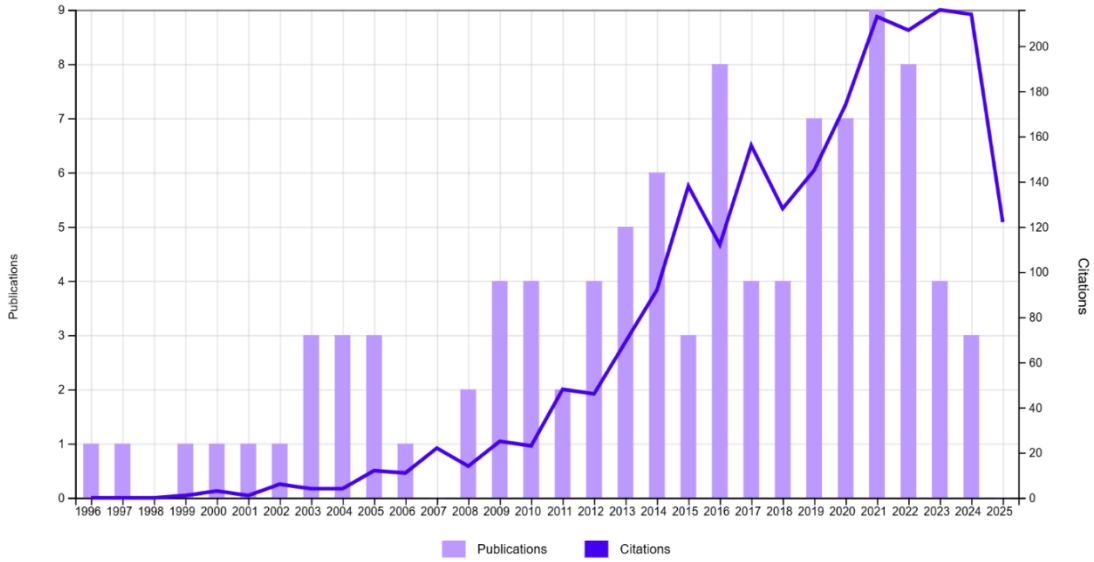


Figure 1 Web of Science citation & year wise analysis

Table 2

Document type-wise distribution

S.No	Document type	Record count	% out of 100
1	Article	85	85
2	Book review	4	4
3	Early access	1	1
4	Editorial material	10	10

@2025 International Council for Education Research and Training
ISSN: 2959-1376
2025, Vol. 04, Issue 04, 224-236
DOI: https://doi.org/10.59231/SARI7877

5	Proceeding paper	5	5
6	Review article	1	1

Table 2 states the document type-wise distribution of research output is identified. The majority of presenters prefer to publish in an article. In this, the article occupies the top, and it is calculated to be 85%. The next editorial material is calculated to be 10 (10%). The third position is gained by the proceeding paper in which 5 (5%) publications were found. It was observed that the article seems to be the topmost of all other document type.

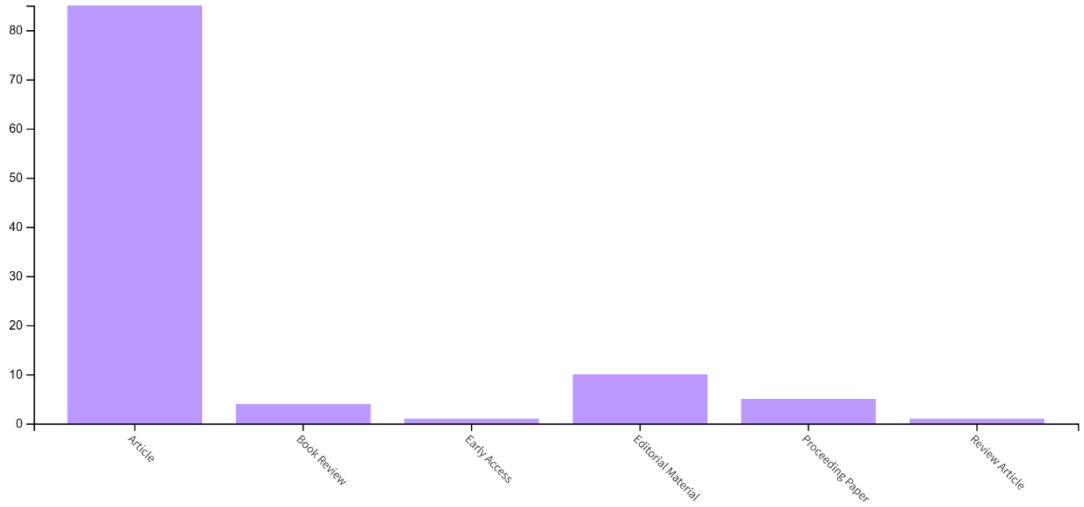


Figure 2 Document **type-wise distribution**

Table 3

Web of Science categories or research areas, top 25 entries out of 46 entries

S.No	Web of Science categories	Record count	% out of 100
1	Anthropology	2	2
2	Archaeology	1	1
3	Area Studies	1	1

@2025 International Council for Education Research and Training
ISSN: 2959-1376
2025, Vol. 04, Issue 04, 224-236
DOI: https://doi.org/10.59231/SARI7877

4	Art	6	6
5	Asian Studies	1	1
6	Business	3	3
7	Chemistry Multidisciplinary	1	1
8	Communication	2	2
9	Computer Science Artificial Intelligence	2	2
10	Computer Science Hardware Architecture	2	2
11	Computer Science Information Systems	2	2
12	Computer Science Interdisciplinary Applications	5	5
13	Computer Science Software Engineering	3	3
14	Economics	2	2
15	Education Educational Research	64	64
16	Education Scientific Discipline	5	5
17	Engineering Multidisciplinary	5	5
18	History Of Social Sciences	3	3
19	History Philosophy of Science	2	2
20	Humanities Multidisciplinary	4	4
21	Information Science Library Science	4	4
22	Linguistics	4	4
23	Management	2	2
24	Psychology Multidisciplinary	2	2
25	Social Sciences Interdisciplinary	3	3

@2025 International Council for Education Research and Training
ISSN: 2959-1376
2025, Vol. 04, Issue 04, 224-236
DOI: https://doi.org/10.59231/SARI7877

Table 3 states that the Web of Science category-wise distribution of research output is identified. The majority of presenters publish in the Education Research. In this, the Educational Research occupies the top, and it is calculated to be 64%. Next Arts is calculated to be 6(6%). The third position is gained by the Computer Science Interdisciplinary Applications, Education, Scientific Discipline, Engineering Multidisciplinary, in which 5 (5%) publications were found. It was observed that educational Research seems to be the topmost of all other Web of Science categories.

Table 4

Web of Science index out of 5 entries

S.no	Web of Science Index	Record count	%
1	Arts & Humanities Citation Index (A&HCI)	18	18
2	Conference Proceedings Citation Index – Social Science & Humanities (CPCI-SSH)	3	3
3	Conference Proceedings Citation Index – Science (CPCI-S)	3	3
4	Science Citation Index Expanded (SCI-EXPANDED)	18	18
5	Social Sciences Citation Index (SSCI)	84	84

Table 4 states that the Web of Science index distribution of research output is identified. The majority of Web of Science-indexed journals are Social Sciences Citation Index (SSCI). In this, the Social Sciences Citation Index (SSCI)occupies the top, and it is calculated to be 84%. The next Arts & Humanities Citation Index (A&HCI) and Science Citation Index Expanded (SCI-EXPANDED) is calculated to be 18 (18%). The third position is gained by the Conference Proceedings Citation Index – Social Science & Humanities (CPCI-SSH) and Conference Proceedings Citation Index – Science (CPCI-S), with 3 (3%) publications found. It was observed that the Social

@2025 International Council for Education Research and Training
ISSN: 2959-1376
2025, Vol. 04, Issue 04, 224-236
DOI: https://doi.org/10.59231/SARI7877

Sciences Citation Index (SSCI) seems to be the topmost of all other Web of Science-indexed journals.

Table 5

Web of Science Affiliation out of 143 records

S. No	Affiliation	Record count	% out of 100
1	0klahoma state univ	1	1
2	Aalto university	1	1
3	Amer sch class studies Athens	1	1
4	Arizona state university	1	1
5	Arizona state university Tempe	1	1
6	Athabasca university	2	2
7	Austrian res inst artificial intelligence	1	1
8	Griffith university	2	2
9	McGill university	2	2
10	Michigan state university	2	2
11	Nanfang college Guangzhou	2	2
12	Nanyang technological university	2	2
13	National institute of education nie Singapore	2	2
14	Open university uk	2	2
15	State University of New York suny system	2	2
16	Sun yat sen university	3	3
17	University of alberta	2	2
18	University of auckland	2	2
19	University of bristol	3	3
20	University of cape town	3	3
21	University of johannesburg	2	2
22	University of nottingham	2	2

@2025 International Council for Education Research and Training
ISSN: 2959-1376
2025, Vol. 04, Issue 04, 224-236
DOI: https://doi.org/10.59231/SARI7877

23	University of queensland	2	2
24	University of strathclyde	2	2
25	University of warwick	2	2

Table 5 states the affiliation-wise distribution of research output is identified. The majority of universities have affiliated. In this, the University of Cape Town, University of Bristol, and Sun Yat-sen University occupy the top, and it is calculated to be 3%. It was observed that the University of Cape Town, University of Bristol, and Sun Yat-sen University seem to be the topmost of all other affiliations in Web of Science.

Table 6

Language-wise distribution in Web of Science

S. No	Language	record	%
1	English	97	97
2	Spanish	3	3

Table 6 states the language-wise distribution of research output is identified. The majority of presenters prefer to publish in English. In this, the English language occupies the top, and it is calculated to be 97%. The next is Spanish language, which is calculated to be 3 (3%). It was observed that the English language seems to be the topmost of all other languages in Web of Science.

Table 7

Web of Science Language-wise distribution in the Country out of 28 entries

S.No	Country	Record count	% out of 100
1	Australia	7	7
2	Austria	1	1
3	Canada	11	11
4	Cyprus	1	1
5	Denmark	1	1

@2025 International Council for Education Research and Training
ISSN: 2959-1376
2025, Vol. 04, Issue 04, 224-236
DOI: https://doi.org/10.59231/SARI7877

6	England	18	18
7	Estonia	1	1
8	Finland	2	2
9	France	2	2
10	Germany	2	2
11	Greece	1	1
12	India	3	3
13	Ireland	1	1
14	Israel	1	1
15	Netherlands	2	2
16	New Zealand	4	4
17	Peoples China	5	5
18	Scotland	4	4
19	Singapore	2	2
20	South Africa	4	4
21	Spain	5	5
22	Sweden	2	2
23	Switzerland	1	1
24	Turkey	2	2
25	Usa	30	30

Table 7 states that the country-wise distribution of research output is identified USA published 30% papers in Web of Science on the topic tech tech-driven pedagogy. In this, the UK published 18% of research articles. In addition, India published only 3% of articles.

Discussion

The productivity of research in the field of tech-driven pedagogy has increased over the last twenty-five years, from 1999 to 2024. A total of one hundred cloud computing research outputs were produced. 2021 produced the most outputs, with nine (9%). Reference and

@2025 International Council for Education Research and Training
ISSN: 2959-1376
2025, Vol. 04, Issue 04, 224-236
DOI: https://doi.org/10.59231/SARI7877

H-Index The year 2011 had the highest citation score of 250 and the highest h-index for the study period was 2021. The distribution of research output by language is determined. English is the preferred language for most scientists to publish in. It has a rating of 97. The English language ranks highest among the 100 overall output, accounting for 97%. It was noted that English appears to be the most widely used and favoured language worldwide. According to the data, the USA produced 30 papers (30%), making it the nation with the most research articles published in the topic of tech-driven pedagogy in education. With 18 articles (18%), England generated the second-highest number of publications, while India came in seventh with 3 papers (3%). Six document kinds of publications in this field were discovered by this investigation. With 85 out of 100 records (85%) in the survey, the article was the most often seen publishing category. Review editorial content was the second most prevalent publication category, appearing in 10 records (10%). This study also looked at book reviews, proceeding papers, review articles, and early access publications. The study of tech-driven pedagogy in education from 1999 to 2024. Out of all the categories in the Web of Science, education and educational research have the most publications (64 out of 100).

Conclusion

As indicated by metrics from the Web of Science database, this study offers a comprehensive understanding of the influence and uptake of tech-driven pedagogy in education. The analysis points to an expanding corpus of research showing broad interest in and investigation into using technology to improve teaching methods across the entire world. While addressing issues like data security and integration complexity, key findings emphasise how technology may improve access, scalability, and collaborative learning opportunities in the education industry. To take advantage of cloud computing's potential to revolutionise learning environments, more research and innovation are needed. In order to successfully integrate cloud technologies into contemporary educational practices, educators and policymakers must carefully negotiate these changes, taking into account both technology advancements and educational outcomes.

REFERENCES:

1. Das, S. (2012). On two metaphors for pedagogy and creativity in the digital era: Liquid and solid learning. *Innovations in*

@2025 International Council for Education Research and Training
ISSN: 2959-1376
2025, Vol. 04, Issue 04, 224-236
DOI: https://doi.org/10.59231/SARI7877

Education and Teaching International, *49*(2), 183–193. https://doi.org/10.1080/14703297.2012.677594

2. Glover, I., Hepplestone, S., Parkin, H. J., Rodger, H., & Irwin, B. (2016). Pedagogy first: Realising technologies enhanced learning by focusing on teaching practice. *British Journal of Educational Technology*, *47*(5), 993–1002. https://doi.org/10.1111/bjet.12425
3. Kali, Y., Sagy, O., Benichou, M., Atias, O., & Levin-Peled, R. (2019). Teaching expertise reconsidered: The Technology, Pedagogy, Content and Space (TPeCS) knowledge framework. *British Journal of Educational Technology*, *50*(5), 2162–2177. https://doi.org/10.1111/bjet.12847
4. Liu, C., Hua, F., Huang, Y., Huang, J., Chen, J., Liang, S., & Liu, Q. (2024). Is it still a pleasure to be a flâneur/flâneuse? Adopting a walking-based pedagogy to explore the digitalized urban spaces. *Journal of Geography*, *123*(4), 112–122. https://doi.org/10.1080/00221341.2024.2390855
5. Nguyen, G. N. H., & Bower, M. (2018). Novice teacher technology-enhanced learning design Practices: The case of the silent Pedagogy. *British Journal of Educational Technology*, *49*(6), 1027–1043. https://doi.org/10.1111/bjet.12681
6. Rooney, D., & Nyström, S. (2018). Simulation: A complex pedagogical space. *Australasian Journal of Educational Technology*, *34*(6). https://doi.org/10.14742/ajet.4470
7. Yürekli Kaynardağ, A. (2017). Pedagogy in HE: Does it matter? *Studies in Higher Education*, *44*(1), 111–119. https://doi.org/10.1080/03075079.2017.1340444

Received on Aug. 14, 2025
Accepted on Sep. 20, 2025
Published on Oct. 20, 2025