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Original Article

A Review of Field Trips Research from 1989 to 2024: Bibliometric Analysis Approach

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Abstract: Field trip acts as a short-term experiential learning to provide students with new experiences. Prior studies have explored various aspects of field trips. However, a comprehensive picture of field trip research has not been captured yet. This paper presents a bibliometric review to update the development history of field trip publications and outlines the prospective trends for future academic works. The Scopus database was collected and analysed by the VOSviewer software. The findings showed that the number of yearly publications has risen rapidly over the past 35 years. The three most popular journals in field trip education are the International Journal of Science Education, Journal of Geoscience Education, and Environmental Education Research. The United States, the United Kingdom, and Germany are the most influential contributors, accounting for more than half of the articles in the field trip study. Furthermore, four themes are explored: geoscience education, education in formal and informal settings, active learning outside the classroom, and experiential and technology-enhanced learning. The research makes a theoretical contribution to enrich the literature on experiential learning in general and field trip studies in particular. Future studies can select a trendy theme to develop field trip activities at a specific Vietnamese university.

Keywords: Field trip, experiential learning, Scopus database, bibliometric review.

1. Introduction

A field trip is defined as "a school or class trip with an educational intent" (Behrendt & Franklin, 2014, pp. 236) [1], which allows students to obtain new experiences from observing and interacting with active or open learning environments designed for fostering the students' "more positive attitude about the subject" (Behrendt & Franklin, 2014, pp. 235) [1]. The field trip is helpful because it motivates students to apply their classroom knowledge to the practical environments, which leads to a profound mastery of what students observe in the real world (Krakowka, 2012) [2].

Prior studies were conducted on different aspects of field trips with various research methods, namely, photovoice (Behrendt & Machtmes, 2016) [3], questionnaire

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(Prokop et al., 2007) [4], (Ateşkan & Lane, 2016) [5] or interview (Farmer et al., 2007) [6], (Cheng, 2022) [7], or a combination of questionnaire and interview (Lavie Alon & Tal, 2015) [8]. However, conducting a detailed systematic review with the application of bibliometric techniques remains unexplored.

Furthermore, when field trip research has been given greater attention, existing reviews might encounter difficulties in demonstrating the evolving trends. This study can fill the gaps by providing a comprehensive quantitative review of research trends over the past thirty-five years, utilising the bibliometric method.

The study seeks to answer the following three research questions:

RQ1: What are the publication trends in the field trip study?

RQ2. Which journals, articles, countries, and authors are the most influential in the field trip study?

RQ3. What are the most frequently investigated topics in the field trip study?

The article consists of five parts. The introductory section provides the rationale for conducting a systematic review of the field trip study. The second part summarizes the prior document related to the bibliometric review. The third part is study methodology, which includes database selection, search criteria, identification of sources, and data analysis. The next section is results and discussion, which align with the research questions. The final section is the conclusion, which summarises the findings and provides recommendations for future studies.

2. Literature Review

2.1. Field Trip

The field trip is one of the various types of experiential learning, where students' coursework understanding, theory enhancement, and group interaction development are enhanced (Arcodia et al., 2021) [9] through specific experiences. Students can "explore, touch, listen, watch" (Campbell & Gedat, 2021, pp. 133) [10] to gain "authentic, first-hand, sensory-based learning" (Behrendt & Franklin, 2014, pp. 237) [1].

The field trip can be organized at school and in out-of-school settings. On-campus field trips are implemented with the support of mobile devices in virtual environments (Cheng, 2022) [7]. Out-of-school environments for field trips cover natural environments or museums (Lavie Alon & Tal, 2015) [8], an Earth satellite station (Fauzi & Rizman, 2015) [11] or industrial enterprises (Pham & Nguyen, 2022) [12].

The field trip can be implemented for different levels of education, including elementary students (Farmer et al., 2007) [6], secondary students (Prokop et al., 2007) [4], high school students (Behrendt & Machtmes, 2016) [3] or university students (Ateşkan & Lane, 2016) [5], (Nguyen & Nguyen, 2018) [13].

2.2. Bibliometric Analysis

Bibliometric analysis utilises data from various databases, including Scopus and Web of Science, enables authors to explore patterns, trends, and structures within scientific literature (Hoang, 2025) [14].

Bibliometric analysis can provide descriptive statistical results, including "size, change over time, number of documents by decade, geographic source, and scholars" (Hallinger, 2020, pp. 7) [15]. Additionally, science mapping can be performed to illustrate research focuses by analyzing the keyword co-occurrence network (Hoang, 2025) [14].

3. Research Methodology

3.1. Database Selection

The Scopus database was selected for the study because it was asserted as "the most satisfactory repository" for systematic reviews (Hallinger & Kulophas, 2020, pp. 4) [15]. Its coverage is more extensive than that of Web of Science, and its bibliographic data is more comprehensive than that of Google Scholar (Zupic & Čater, 2015 [16], Hallinger et al., 2019 [17], Hallinger & Kulophas 2020) [15].

3.2. Data Filtering Process

The terms ("field trips" OR "field trip") were the keywords entered into the Scopus search form at 16:20 on May 2, 2025. The primary search yielded 5,477 articles. The guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (Moher et al., 2009) [18] or PRISMA were followed for selecting and summarising the results of the initial search (Figure 1).

In the screening step, five criteria were established to identify the relevant articles. Firstly, only English articles were chosen. Secondly, the study was limited to academic articles, which means that book chapters, conference papers, and other types of documents were excluded from this paper. Thirdly, the timeframe was not applied. However, the search time was May 2025, when the 2025 database was not sufficiently collected. Therefore, the database covered the initial publication till 2024. Furthermore, the subject areas were restricted to social sciences, which include "Arts and Humanities, Business, Management, and Accounting, Decision Sciences, Economics, Econometrics, and Finance, Psychology, Social Sciences" (Phan et al., 2022, pp. 4) [19]. Lastly, keywords were limited to "field trip" and "field trips". The dataset was sorted out to include 227 documents.

The next step is to manually review the titles, abstracts, and keywords to determine relevance. One article was removed because it did not have an abstract and lack references. A final dataset of 226 articles was eligible to be analyzed.

3.3. Data Analysis

This study employed descriptive analysis and bibliometric visualisation. Firstly, Microsoft Excel 2019 was used to calculate the number of yearly documents and the top journals with the largest number of publications. Secondly, VOSviewer (version 1.6.20), released on October 31, 2023, was used to construct and visualize bibliometric maps of science (Waltman & van Eck 2020) [20] and explore the bibliometric networks for the field trip.

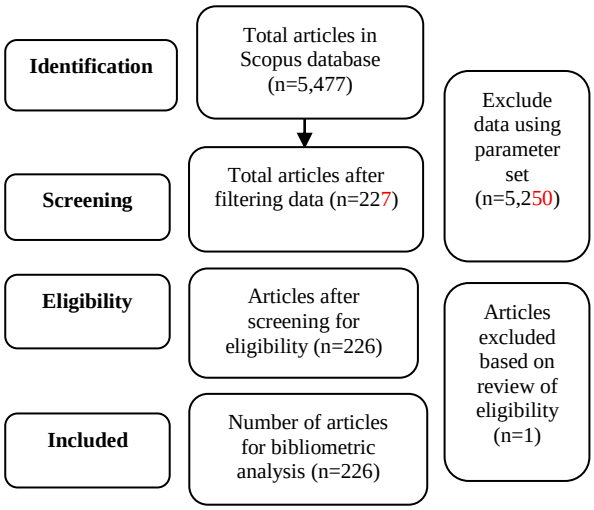

Figure 1. The PRISMA diagram for selecting documents for bibliometric analysis.

4. Results and Discussion

4.1. Yearly Publications

Between 1989 and 2024, 226 articles were published in the field trip from 1989 to 2024, with four pivotal periods (Figure 2). Firstly, the paper was limited to the first period, from 1989 to 2007, during which one to three articles were published. Then, a dramatic change occurred in the 2008-2012 period, with an average of 8 articles per year and a peak of 17 articles in 2012. The third period showed a decline in the 2013-20215 period before rising gradually in 2016-2017, reaching a peak of 18 papers in 2017. Lastly, 2018 to 2021, and 2022 to 2024 were two periods of fluctuation of papers in the field trip, with two other peaks of 20 and 17 papers seen in 2021 and 2024.

Our analyses show a trend of publications in field trip research over the past 35 years. 2021 is a noticeable year with the highest articles for some possible reasons. Firstly, besides traditional field trips to museums and zoos, field trips were implemented through various academic subjects, such as engineering

education (Frimpong & Effah, 2021) [21] and architecture (McIntosh & Marques, 2021) [22]. Secondly, the application of new technology, such as virtual reality (Memik & Nikolic, 2021) [23], to enhance the field trip experiences has been an emerging research direction in the context of the COVID-19 pandemic.

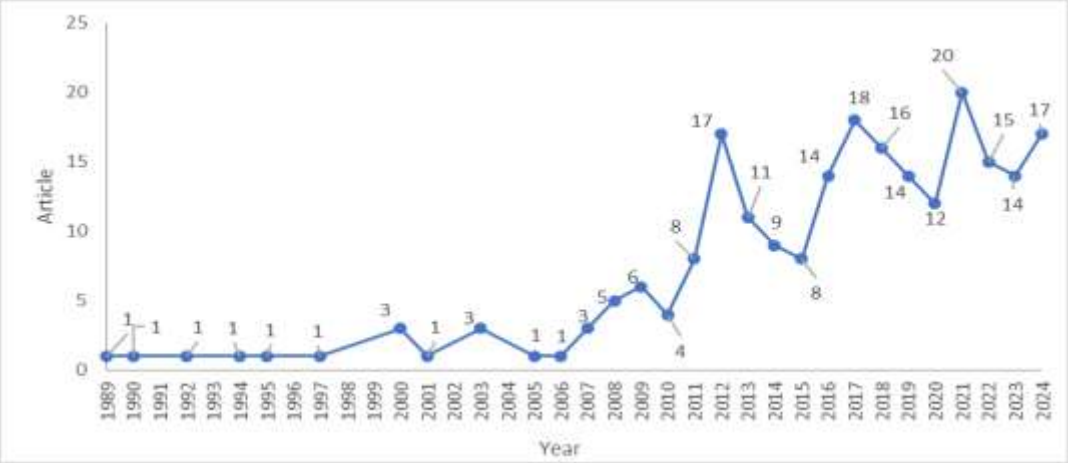

Figure 2. Trends in the field trip articles.

4.2. Noted Journals in the Field Trip Field

Concerning the most influential journals, a total of 226 articles were published in 144 journals. The thirteen most significant journals, with at least three articles, are listed in Table 1. SCImago Journal Rank, an open and free platform for visualizing journal rankings (Kocyigit et al., 2023) [24], indicates that the top thirteen most influential journals are indexed in the Scopus databases, of which 46.15 % are ranked in Q1 and 53.85% belong to Q2. Additionally, the International Journal of Science Education was the leading journal in terms of publications, with 14 articles, followed by the Journal of Geoscience Education and Environmental Education Research, with 10 and 8 articles, respectively. It was noticeable that the Journal of Research in Science Teaching is the most vital reference source cited by researchers, with an average of 46 citations per article, followed by the International Journal of Science Education, Journal of Experiential Education, and Journal of Geography, with an average of 29.5, 27.3, and 25.8 citations per article.

Table 1. Top 13 influential journals in the field trip study.

No.	**Journal**	**Quartiles** (SCImago Journal Rank)	**Number of articles**	**Citations**
1	International Journal of Science Education	Q2	14	413
2	Journal of Geoscience Education	Q2	10	104
3	Environmental Education Research	Q1	8	151
4	Journal of Geography in Higher Education	Q1	6	62
5	Journal of Museum Education	Q1	5	29
6	Journal of Experiential Education	Q2	4	109
7	Journal of Geography	Q2	4	103
8	Journal of Teaching in Travel and Tourism	Q2	4	53
9	Research in Science Education	Q1	4	66

No.	Journal	Quartiles (SCImago Journal Rank)	Number of articles	Citations
10	Eurasia Journal of Mathematics, Science and Technology Education	Q2	3	14
11	Journal of Research in Science Teaching	Q1	3	138
12	Pacific Journalism Review	Q2	3	20
13	Sustainability	Q1	3	18
	Total		**71**	**1280**

Table 2. Top 10 articles with the highest citations.

No.	Article	Authors (Scopus ID)	Year	Total citations
1	A review of research on school field trips and their value in education	Behrendt, Marc (55363079100); Franklin, Teresa (25031195000)	2014	278
2	An elementary school environmental education field trip: long-term effects on ecological and environmental knowledge and attitude development	Farmer, James (16233268100); Knapp, Doug (16233857900); Benton, Gregory M. (16232549200)	2007	192
3	Virtual field trip for mobile construction safety education using 360-degree panoramic virtual reality	Pham, Hai Chien (57221637337); Dao, Nhu-Ngoc (56810883300); Pedro, Akeem (56402928500); Le, Quang Tuan (55536113800); Hussain, Rahat (57031417300); Cho, Sungrae (55542045700); Park, Chan Sik (55728031400)	2018	116
4	Museum learning via social and mobile technologies: (How) can online interactions enhance the visitor experience?	Charitonos, Koula (55345822600); Blake, Canan (7102960962); Scanlon, Eileen (7005219969); Jones, Ann (55475851300)	2012	113
5	Field trips as valuable learning experiences in geography courses	Krakowka, Amy Richmond (59158070900)	2012	97
6	Experiential learning theory: the importance of outdoor classrooms in environmental education	Jose, Sara (57201501681); Patrick, Patricia G. (7005137853); Moseley, Christine (25222077900)	2017	93
7	Short-term effects of field programme on students' knowledge and attitude toward biology: A Slovak experience	Prokop, Pavol (8864179500); Tuncer, Gaye (6602003008); Kvasničák, Radoslav (18233967600)	2007	89
8	Fostering personalized learning in science inquiry supported by mobile technologies	Song, Yanjie (55661776200); Wong, Lung-Hsiang (35212726900); Looi, Chee-Kit (6701492423)	2012	89
9	Reflective practice as a means for preparing to teach outdoors in an ecological garden	Tal, Tali (14523488100); Morag, Orly (9734217000)	2009	84
10	An inquiry-based augmented reality mobile learning approach to fostering primary school students' historical reasoning in non-formal settings	Efstathiou, Irene (57193511830); Kyza, Eleni A. (8790278700); Georgiou, Yiannis (57188625482)	2018	77

4.3. Most Cited Articles

Figure 2 indicates that there are 226 articles relating to field trips. The Excel data analysis reveals that 89% of chosen articles have at least one citation, and the top 10 papers with the highest citations are presented in Table 2.

Table 2 presents that the article "A review of research on school field trips and their value in education" has been cited most frequently, with 278 total citations. It was written by two authors from Ohio University, United States, and was published 11 years ago. The second most frequently cited article is "An elementary school environmental education field trip: long-term effects on ecological and environmental knowledge and attitude development", with a total of 192 citations. This article was co-authored by three American authors, who published it 18 years ago. The third most cited article, with 116 total citations, is "Virtual field trip for mobile construction safety education using 360-degree panoramic virtual reality", which was published seven years ago. It was a cooperative product between Vietnamese and Korean researchers working for Chung-Ang University, in South Korea.

4.4. Influential Countries in the Field Trip Study

Authors from 36 countries wrote 226 articles. Table 3 presents the top 20 countries with the highest frequency of publications. The United States is a leading country in publishing field trip papers, with 82 articles. This result is similar to that of Hallinger & Narong (2024) [25], who show that the United States is the leading country, accounting for 70% of the articles in the field of service learning research, while 119 other countries contribute 30%. Similarly, Phan et al., (2022) [16] found that the United States was one of the two leading contributors to the study of the learning management system or distance learning system, surpassing 38 other countries.

Table 3. The top 20 countries with the highest number of articles

No.	Country	Number of articles	No.	Country	Number of articles
1	United States	82	11	Malaysia	4
2	United Kingdom	21	12	Hong Kong (China)	3
3	Germany	17	13	Italy	3
4	Australia	14	14	Japan	3
5	Israel	10	15	Norway	3
6	Spain	8	16	Slovakia	3
7	Turkey	8	17	South Korea	3
8	New Zealand	6	18	Viet Nam	3
9	Canada	5	19	Austria	2
10	Taiwan (China)		20	India	2

The United Kingdom and Germany rank second and third, with 21 and 17 articles, respectively. The United States, the United Kingdom, and Germany are three countries that contribute more than 50% of the articles for the field trip. Vietnam is an emerging contributor with three papers, similar to Hong Kong (China), Italy, Japan, Norway, Slovakia, and South Korea and more than Austria and India, which have two articles each. The field trip is a promising area for teachers and researchers in Vietnam to continue studying and applying in specific educational settings.

4.5. Key Authors

The most cited authors in the research field were discovered by using the co-citation analysis technique of cited authors (Ding &

Yang, 2022) [26]. 11,919 author names were "extracted from the raw reference strings" (Waltman & van Eck, 2020, pp. 32) [20] in the Excel file of the Scopus database. With a filtering criterion of 20 citations by an author, 39 authors were sorted. Table 4 shows a short list of the top 10 cited scholars for the period from 1989 to 2024.

As shown in Table 4, Tali Tal, who worked at the Israel Institute of Technology, was cited as having the highest number (118), and the total link strength was also the highest (2,916). The second and third positions were held by John H. Falk (102 co-citations; 2,391 total links of strength) and Martin Storksdieck (88 citations; 1,941 total links of strength). The list of the top ten key scholars originates from Israel (4 authors), the United States (3 authors), and the United Kingdom (2 authors). Influential researchers work for higher education institutions, research institutes, and educational enterprises, indicating that key authors are experts in theory development and practical applications in field trips.

Table 4. Top 10 cited authors

No.	Author	Affiliation	Nation	Citations	Total link strength
1	Tali Tal	Israel Institute of Technology	Israel	118	2, 916
2	John H. Falk	Science Learning, Inc.	The United States	102	2,391
3	Martin Storksdieck	Institute for Learning Innovation	The United States	88	1,941
4	James Kisiel	California State University	The United States	86	1,838
5	Justin Dillon	King's College London	The United Kingdom	70	1,836
6	Nir Orion	Weizmann Institute of Science	Israel	87	1,659
7	Avi Hofstein	Weizmann Institute of Science	Israel	77	1,638
8	David Anderson	University of British Columbia	Canada	74	1,602
9	Orly Morag	Israel Institute of Technology	Israel	62	1,595
10	Jennifer DeWitt	People Science & Policy Ltd	The United Kingdom	65	1,381

4.6. Keyword Analysis

The co-occurrence of all keywords was analyzed using a threshold of at least 5 times the occurrence of each keyword. 23 out of 1,177 keywords meet the threshold. For each of the 23 keywords, the total link strength of the co-occurrence links with other keywords was measured. The keywords with the strongest links are shown in Figure 3. With attention to the analysis of keywords, as displayed in Figure 3, it was observed that "field trip" (226 times) has the greatest link strength (226) with other keywords, indicating that field trip is the core focus of most studies. Furthermore, it is followed by ''teaching'' (26 times with a link strength of 84), and ''student'' (27 times with a link strength of 81). Through co-occurrence analysis, four thematic clusters illustrating the field trip research structure, as defined by keywords, were identified based on time changes from 2012 to the present (Figure 4).

Cluster 1 (purple): This cluster covered keywords popular from 2010 to 2013 and might be named as geoscience education. It included the keywords concerning geography education (6 times with a link strength of 22), geology (7, 21), earth science (5, 16), and field study (5, 15). The initial field trip to educate students and teachers in geoscience was reported by Edgett (2000) [27]. In this article, K12 teachers in the United States were selected to join the trip with scientists and engineers to landscapes near the giant river in Washington and Idaho to find a Mars-like venue for spacecraft's landing.

After the trip, the teachers were expected to share their real experiences with students and colleagues.

Cluster 2 (Teal green): The second cluster covered the keywords well-known from 2013 to 2015 and might be grouped into education in formal and informal settings. It contained the keywords: teaching (26 times with a link strength of 84), student (27, 81), education (25, 66), curriculum (8, 18), environmental education (7, 13), and engineering education (5, 12), outdoor learning (5, 10), informal learning (5, 9), and informal education (5, 7).

Cluster 3 (green): The third cluster encompassed the keywords "widespread" from 2015 to 2017 and could be labelled as active learning outside the classroom. This cluster encompassed keywords related to learning (16 times with a link strength of 51), museum (17, 33), active learning (5, 20), and informal science education (5, 10).

Cluster 4 (yellow): The final cluster included the keywords "trendy" from 2018 to the present and might be referred to as experiential and technology-enhanced learning. This cluster included the keywords related to experiential learning (24 times with a link strength of 37), virtual reality (8, 21), virtual field trips (5, 15), augmented reality (5, 13), and out-of-school learning (5, 7). Virtual reality field trips were implemented in Vroom areas in the library, which can supply 2D or 3D digital geography experiences for a state museum in Poland (Roelofsen & Carter-White, 2022) [28] or panoramic VR using 360° panoramas to discover the river basin in Germany (Grosser et al., 2023) [29].

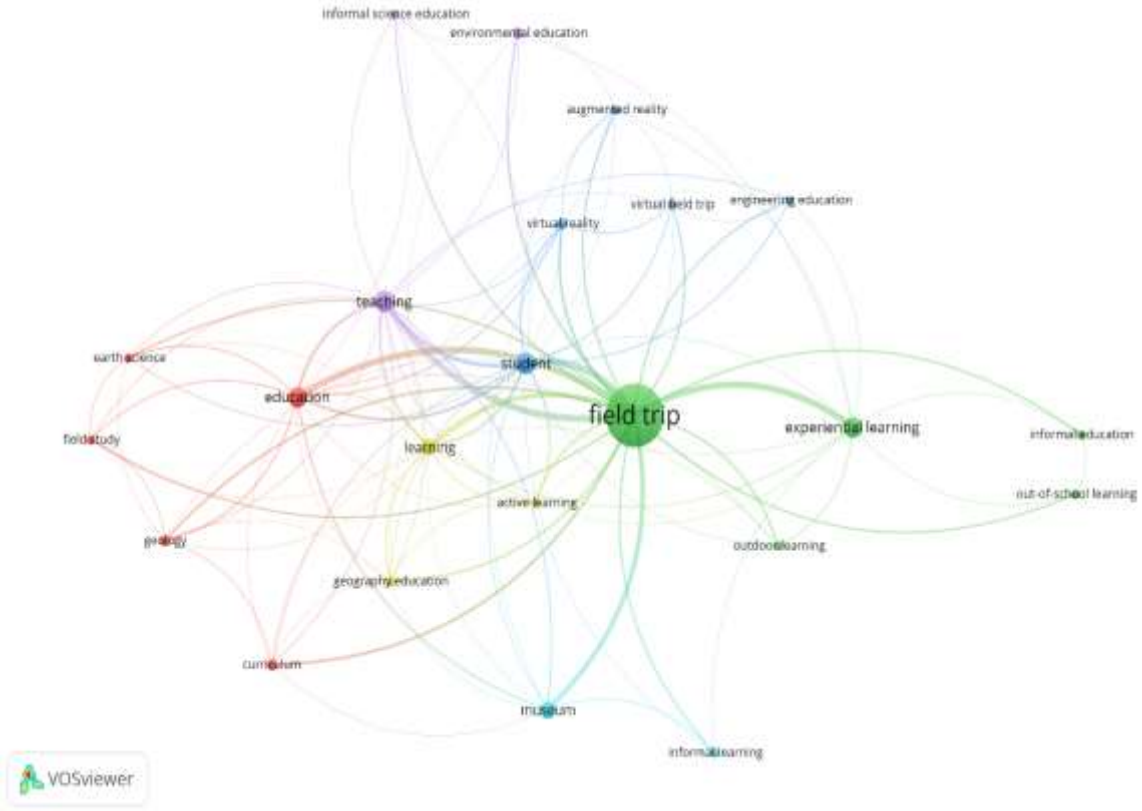

Figure 3. Keyword occurrence analysis.

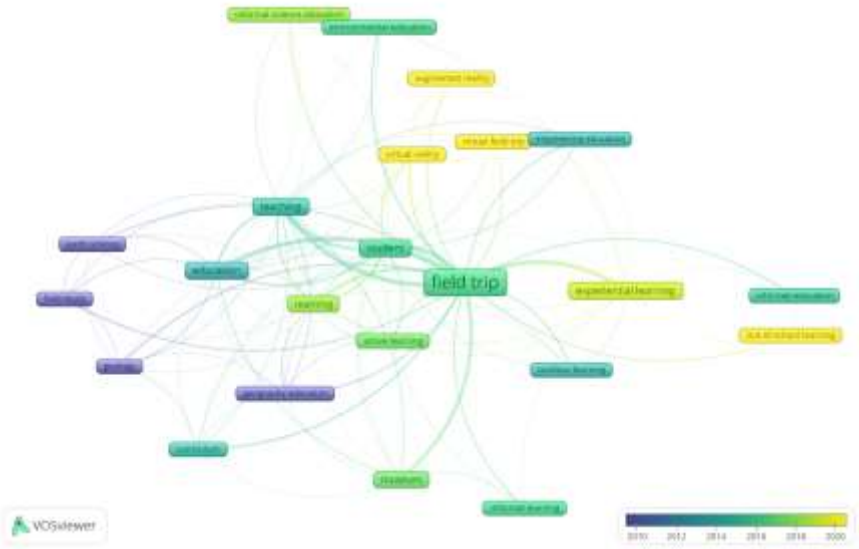

Figure 4. Temporal keyword changes.

5. Conclusion

In conclusion, several key findings were identified through a bibliometric analysis of knowledge mapping in field trip research from 1989 to 2024. Firstly, the field trip has garnered significant attention from scholars, with a vast number of 226 articles published between 1991 and 2024. Secondly, the three most notable journals were the International Journal of Science Education, the Journal of Geoscience Education, and Environmental Education Research. The research landscape was dominated by outputs from scholars in the United States, with the initial paper in 1989, and twenty-six other years of publishing 81 papers. Two other leading countries in terms of field trip articles are the United Kingdom and Germany. Furthermore, Tali Tal, John H. Falk, and Martin Storksdieck are authors of the highest number of co-citations. Lastly, the heated spots in the research on experiential learning in the literature from 1989 to 2024 can be classified into four clusters: geoscience education, education in formal and informal settings, active learning outside the classroom, and experiential and technology-enhanced learning. Through the use of trendy keywords grouped into the four above clusters, the paper provided helpful guidance, enabling researchers to track the academic evolution in the field trip research over time and then identify promising study directions.

Besides, the study has three primary limitations regarding its scope and sampling. Firstly, bibliometric research has a content limitation relating to the data source. The data in the present research were English publications; therefore, future studies on field trips may benefit from including publications in other languages. Secondly, since the data were collected only from the Scopus database, published works in the field trip area were not included. Field trip articles were sorted by level of education, allowing the next study to be scoped down to a specific level, such as higher education. Last but not least, this paper was limited to 226 articles chosen for the study's criteria, which means that the 5,251 other articles can be explored in different studies.

Future studies should be conducted on field trips in Vietnam. Circular No. 32/2018/TT-BGDĐT on the General Education Curriculum issued by the Minister of Education and Training indicates that experiential learning activities, including field trips, are compulsory

for Vietnamese elementary, secondary, and high school students (MOET, 2018) [30]. These activities have been implemented nationwide since 2019. However, so far, Vietnam has contributed a limited number of Scopus-listed academic papers on the field trip, as shown in Table 3. Lecturers at these schools are recommended to publish their empirical research based on their school trips for students in different grades during the academic year. Furthermore, trending keywords since 2018, as displayed in Figure 3, reveal that virtual field trips have been organized popularly in developed countries (e.g., Poland and Germany). However, they were not preferred as much as real field trips (Seifan et al., 2019, Seifan et al., 2020)) [31, 32]. Therefore, virtual field trips can be considered for implementation in Vietnam as a supplementary option because they help students easily access famous destinations without incurring the costs associated with traveling abroad.

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