International Journal of Advanced Research in Education and Society
e-ISSN: 2682-8138 | Vol. 7, No. 6, 506-519, 2025
https://asianscholarsnetwork.com/asnet-journals

A Science Mapping Analysis of Digital Storytelling in English Learning Research using VOSviewer

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Received: 29 October 2025 | Accepted: 24 December 2025 | Published: 31 December 2025

DOI: https://doi.org/10.55057/ijares.2025.7.6.42

Abstract: *This study conducts a science-mapping bibliometric analysis of research on digital storytelling (DST) within English language learning contexts, with a focus on uncovering the intellectual structure, influential contributors, and evolving research directions in the field. Following PRISMA guidelines, 344 documents indexed in Scopus were systematically identified and analyzed. Using VOSviewer 1.6.20 and Microsoft Excel, three dimensions of science mapping were examined, namely, influential authors and their co-citation patterns, frequently occurring author keywords, and emerging thematic trends. The analysis identified the most influential scholars, whose work forms the intellectual backbone of DST research, revealing four co-citation clusters that highlight distinct theoretical and pedagogical orientations. Keyword co-occurrence analysis further demonstrated the conceptual landscape of the field, uncovering key research foci and emerging trends, particularly in areas such as EFL education, collaborative learning, and digital literacy. The findings present a comprehensive overview of how DST research in English language learning has developed over time, from foundational studies to emerging thematic directions. By mapping the intellectual and conceptual discourse of the field, this study provides valuable insights for researchers, educators, and practitioners seeking to understand current knowledge structures and identify meaningful avenues for future inquiry in DST-based language education research.*

Keywords: Digital Storytelling; English; Science Mapping; Bibliometric Analysis; VOSviewer

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1. Introduction

In recent years, technology-supported learning environments have expanded the possibilities for how learners engage with language, content, and digital media. As multimodal communication becomes increasingly central to educational practice, researchers have sought innovative approaches that integrate storytelling, creativity, and language use in meaningful ways (Huang et al., 2024). Digital storytelling (DST) has become one of the most dynamic innovations in technology-enhanced education, merging linguistic expression with multimedia design. By combining text, visuals, narration, and sound, DST enables learners to craft multimodal narratives that promote both creativity and language development. Within the English language learning context, the practice of DST has shifted from being a classroom innovation to a significant area of empirical and theoretical inquiry (Belda-Medina, 2024). Researchers have increasingly examined DST not merely as a pedagogical tool, but as a catalyst

for language performance, identity construction, and learner engagement in online and blended contexts (Yang et al., 2020; Chen, 2024; Yu & Wang, 2025).

As research on DST continues to expand across technology-enhanced and language-focused educational contexts, the field has become increasingly rich yet conceptually dispersed. Numerous bibliometric reviews have examined aspects such as publication growth, country productivity, and disciplinary trends (Suki et al., 2021; Tian et al., 2021; Chang & Chu, 2022; Özkaya, 2022; Tian & Suki, 2023; Avcı & Kasımi, 2023). However, these studies do not focus on English language learning contexts and primarily rely on descriptive analyses and do not investigate the deeper intellectual patterns that shape how DST knowledge has evolved over time. As a result, the underlying structure of the field, its foundational authors, influential works, conceptual streams, and thematic directions, remains insufficiently understood.

A science-mapping perspective is essential for addressing this gap. Unlike performance indicators, science-mapping techniques such as co-citation analysis, keyword co-occurrence, and thematic clustering reveal how scholars, studies, and concepts are interlinked within a research domain. Such structural insights are crucial for identifying the core knowledge base of DST, understanding how research traditions have formed, and recognising the thematic trajectories driving current scholarship (Donthu et al., 2021; Hassan & Duarte, 2024).

Bibliometric and science-mapping approaches have become powerful methods for tracing the conceptual architecture of an academic field. Through analyses of co-citation networks and keyword co-occurrences, these methods reveal the invisible colleges of researchers, theoretical foundations, and the thematic trajectories that shape future scholarship (Passas, 2024). The present study brings into focus the intellectual structure and thematic progression in DST-based research in English language context. It seeks to identify the most influential authors, co-citation relationships, and evolving thematic clusters that have guided scholarly discourse in this area. By visualizing these connections, the study aims to provide a comprehensive understanding of how DST research has developed conceptually and where it is heading.

Accordingly, this research answers the following questions:

i. Who are the most influential authors in DST research, and how are they interconnected through co-citation networks?
ii. What are the most frequently occurring author keywords, and what do they reveal about the intellectual structure of DST research in English language learning context?
iii. What emerging trends and topical foci characterize the evolution and future directions of DST research in English language learning context?

2. Methodology

Bibliometric analysis is a rigorous quantitative approach used to examine the structure, evolution, and interconnections within a research field through the systematic study of scholarly publications (Donthu et al., 2021; Hassan & Duarte, 2024). Within bibliometrics, two complementary approaches are often distinguished, which are performance analysis, which evaluates contributions of authors, institutions, and countries, and science mapping, which investigates the intellectual and conceptual structure of a field (Öztürk et al., 2024). While performance metrics provide insights into research productivity, science mapping techniques focus on the structural relationships within a field, employing techniques such as citation analysis, co-citation analysis, co-word analysis, and co-authorship network analysis to reveal the intellectual landscape and thematic evolution of a discipline (Donthu et al., 2021). The

present study adopts a science-mapping approach to trace the intellectual and thematic evolution of DST research in English language learning contexts.

2.1 Database Selection

In this study, Scopus was chosen as the primary source for bibliometric data due to its extensive coverage of peer-reviewed journals, books, and conference proceedings across multiple disciplines (AlRyalat et al., 2019; Singh et al., 2021). One of the key advantages of using Scopus in bibliometric studies is its comprehensive citation tracking, which includes all authors cited in reference lists. This allows for a more precise analysis of research networks, author impact, and co-citation relationships (Hallinger, 2019). A structured search strategy was developed to ensure the inclusion of finalized, peer-reviewed publications relevant to DST in English language learning contexts. The systematic search and screening followed the PRISMA guidelines (Page et al., 2021) to maintain transparency and replicability. The inclusion criteria for selecting publications are summarized in Table 1, detailing the types of documents, subject areas, language, and topical focus considered for this study.

Table 1: Publication Inclusion Criteria

Criteria	Description
Focus	Digital storytelling in English language learning context
Context	Native English, ESL, and EFL learning context
Period	All years
Document Type	Articles, conference papers, book chapters, books, and reviews
Document Language	English
Subject Area	Social Science, Art & Humanities, and Psychology

2.2 Data Extraction

Data were collected on 4 June 2025, using a comprehensive search query string designed to capture the scope of DST research in language learning contexts. The query string included variations of DST (e.g., “digital storytelling,” “interactive storytelling,” “collaborative storytelling”) and terms related to English language learning (e.g., “English,” “language learning,” “ESL,” “EFL,” “TESOL,” “TEFL”). An initial retrieval identified 1,078 documents. After restricting to articles, conference papers, book chapters, books, and reviews published in English, 999 documents remained. Further screening for relevant subject areas (Social Sciences, Arts & Humanities, Psychology) yielded 732 publications. The PRISMA flow diagram in Figure 1 depicts the step-by-step process of identifying, screening, and selecting publications for inclusion in the study.

2.3 Data Screening

All records underwent a rigorous cleaning process, including review of titles, abstracts, and full texts, when needed. Duplicates and documents lacking sufficient bibliographic information were removed, resulting in a final dataset of 344 publications. This sample size meets the recommended minimum for robust bibliometric analysis (Rogers et al., 2020).

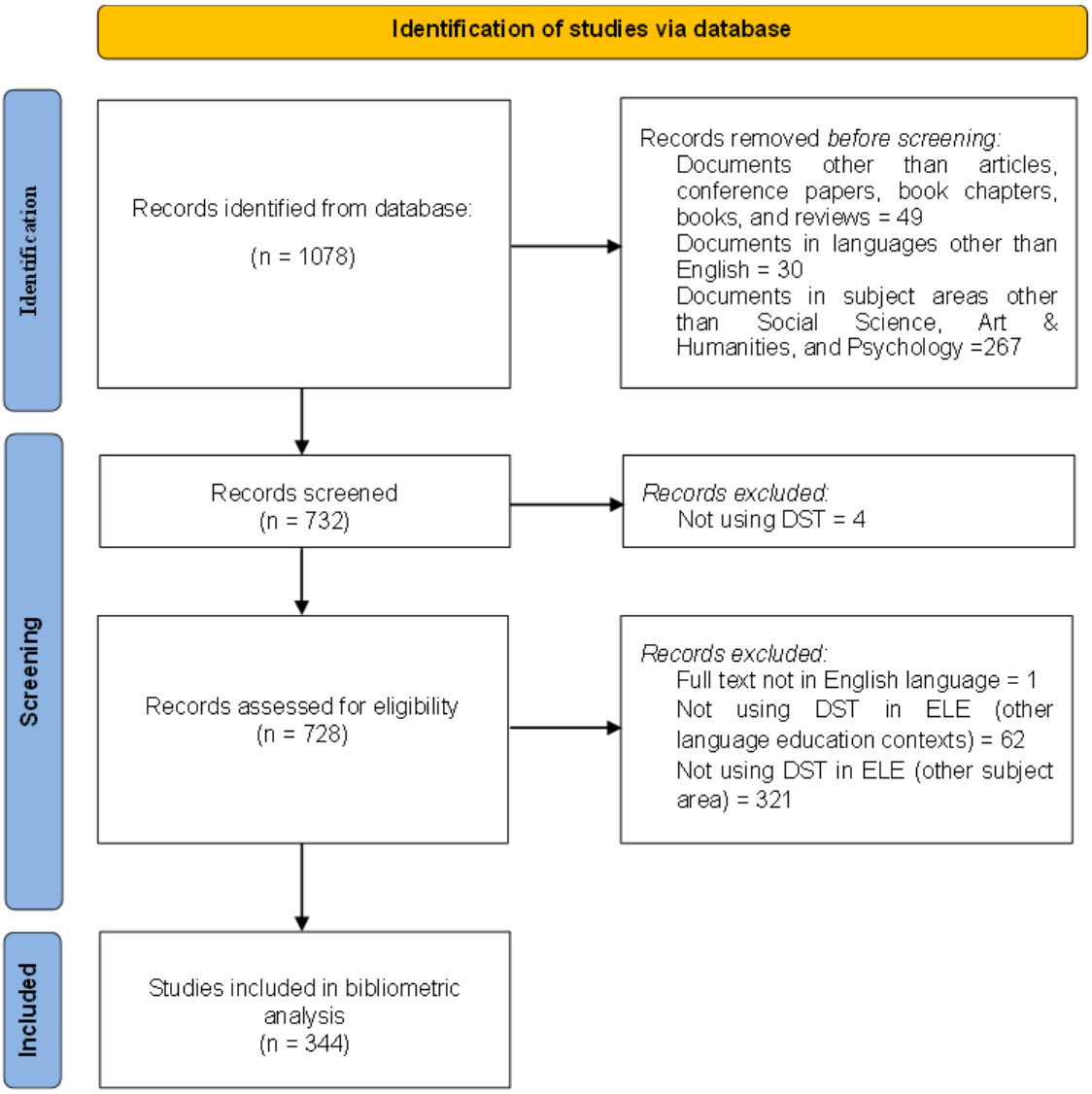

Figure 1: PRISMA Flow Diagram of Publication Screening for Science-Mapping Analysis

2.4 Data Analysis

The analysis focused on uncovering the intellectual and thematic structures of DST research in English language learning contexts. Science mapping techniques were applied to:

- Author Co-Citation Analysis – Identifying influential authors and visualizing how they are interconnected through co-citations.
- Keyword Co-Occurrence Analysis – Revealing recurring concepts, thematic clusters, and emerging topics over time.
- Thematic Cluster and Trend Mapping – Highlighting evolving research areas, topical foci, conceptual linkages, and directions for future studies.

Microsoft Excel was used to organize and preprocess bibliographic data, and VOSviewer 1.6.20 was employed to generate co-citation and co-occurrence networks, as well as to visualize thematic clusters. These tools enabled a systematic exploration of the intellectual landscape and thematic development.

3. Findings and Discussion

3.1 Research Question 1: Who are the most influential authors in DST research, and how are they interconnected through co-citation networks?

The first research question aims to identify the highest contributing scholars and the author co-citation networks in the research of DST in English language learning context. The highest contributing authors were found by examining the total number of documents, citations, and average citations received by the authors. Further, the author co-citation networks were examined and visualized using VOSviewer.

Highest Contributing Author

The analysis of the top ten most contributing authors is presented in Table 2. These authors have made substantial contributions to research on DST in English language learning context. Out of a total of 641 authors identified within the dataset, 25 met the threshold of having authored at least 4 publications. These authors were then ranked based on the overall citation of their work. According to the analysis, Yueh Min Huang emerged as the most influential author, with 198 citations across 3 documents, averaging 66 citations per publication. His works are making a significant impact on the use of DST as a learner-centric approach. The second most contributing author is Chen-Chung Liu, who authored the highest number of documents (n = 5) and accumulated 182 citations. His contributions mainly focus on collaborative DST for English language learning within elementary school settings. Another significant author with 3 documents and 94 citations is Phillip Towndrow. His works are instrumental in building a theoretical and practical understanding of DST in English language learning context.

Other authors in the top ten include Kendrick M., Vinogradova P., Oakley G., Linville H.A., Thang S.M., Chen H.J., and Macleroy V., each making a significant impact and receiving more than 50 citations, highlighting that the use of DST in English language learning context has gained noteworthy attention within academia, with a growing academic interest in this field. The research focus of these ten leading authors converges on the integration of DST in English language learning context, particularly in areas such as collaborative storytelling, translanguaging practices, and the promotion of learner-centered pedagogies.

Table 2: Top 10 Contributing Scholars

Scholars	Documents	Citations	Avg. citation
Huang Y.M.	3	198	66
Liu C.C.	5	182	36.4
Towndrow P.A.	3	94	31.3
Kendrick M.	3	84	28
Vinogradova P.	4	74	18.5
Oakley G.	4	68	17
Linville H.A.	3	62	20.6
Thang S.M.	4	60	15
Chen H.J.	3	55	18.3
Macleroy V.	3	53	17.6

Co-citation Network

Co-citation analysis helps in determining the frequency with which pairs of authors are cited together in the reference list of the dataset. It also helps to uncover the development of knowledge within a discipline, pinpoint key scholars and prominent themes, and provide

insights into the cross-disciplinary links among various areas of research (Punnakitikashem & Hallinger, 2020). For the analysis of the co-citation network, a threshold of a minimum of 25 co-citations was set in VOSviewer. Out of the 14181 authors, 55 met the threshold. Figure 2 displays the co-citation networks of 55 authors. The size of the bubbles is indicative of the frequency of citations, representing the author's influence. The analysis yielded four coloured clusters representing author co-citation belonging to a common research niche within the research of DST in English language learning context.

With 23 scholars, the red cluster forms the largest group in the dataset. This cluster represents scholars cited in works on 'language skills', including skills of listening, speaking, writing, and vocabulary. These scholars tend to study the effect of DST on English language skills of the learners. Scholars who stand out in this cluster include Anderson J., Dornyei Z., Hafner C.A., Hava K., Huang Y.M., Hwang W.Y., Liu C.C., Macleroy V., Shadiev R., Vygotsky L.S., Wu J., and Yang Y.T.C., with co-citations above 30. The highest co-citation can be traced is of Liu C.C. at 62 with a link strength of 751, indicating a strong influence within the cluster. Following close are Shadiev R. and Macleroy V., with 50 and 49 co-citations, respectively, also demonstrating substantial link strength, suggesting their impact within this cluster. Anderson J., Hafner C.A., Dornyei Z., and Yang Y.T.C. have also made a notable impact within the cluster with 40 and above co-citations and link strength significantly above 400.

The green cluster comprises 15 scholars who are frequently co-cited in studies centered on the theme of 'language pedagogy'. These scholars have significantly contributed to the integration of DST into teaching and learning practices. Scholars included in this cluster are Barrett H., Bull G., Dakich E., Kajder S., Mcneil S., Mishra P., Oakley G., Ohler J., Prensky M., Robin B.R., Sadik A., Sharda N., Smeda N., Tsou W., and Wang W. The most prominent scholar with the highest influence within this cluster is Robin B.R., with 269 co-citations and a link strength of 2378. His works significantly contribute to shaping the discourse around the adoption of DST in educational contexts, offering both practical guidance and theoretical insights (e.g., Robin, 2016). Other influential scholars in this cluster are Ohler J. (66 co-citations) with a link strength of 616 and Sadik A. (62 co-citations) with a link strength of 630, suggesting a visible impact within the cluster. These scholars have been instrumental in building a foundational understanding of introducing DST in academic settings.

The blue cluster represents scholars frequently co-cited in studies related to the use of DST for developing 'multimodal literacy' or 'multiliteracies' in English language learning context. This group comprises 10 key scholars, including Cope B., Hull G.A., Jewitt C., Kalantzis M., Knobel M., Kress G., Lankshear C., Nelson M.E., Rowsell J., and Van Leeuwen T. Among them, Kress G. emerges as the most influential figure, owing to his pioneering research on the introduction of the concept of multimodality in language education. He has received 108 co-citations and a total link strength of 1208. Other notable scholars in this cluster, each with 50 co-citations, include Cope B. (link strength 557), Jewitt C. (link strength 608), and Kalantzis M. (link strength 557), all of whom have significantly contributed to the field of multimodality and multiliteracies in education. The strong co-citation ties among these scholars suggest a robust intellectual foundation that supports the use of DST as a pedagogical approach to foster multimodal expression in English language classrooms.

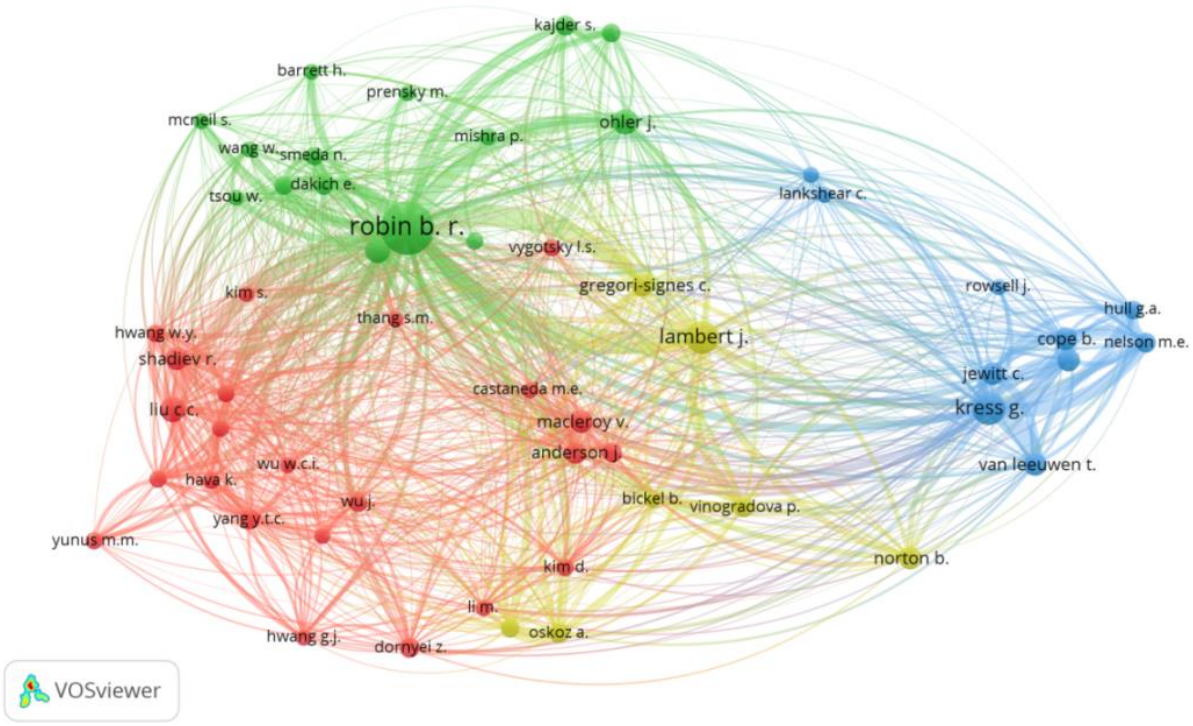

Figure 2: Co-Citation Network

The last yellow cluster represents 7 influential scholars co-cited in works exploring the 'DST approach'. These scholars include Bickel B., Elola I., Gregori-Signes C., Lambert J., Norton B., Oskoz A., and Vinogradova P. Among these scholars, Lambert J. is the most influential scholar with 112 co-citations and link strength of 1126. He has played a pioneering role in shaping the theoretical and pedagogical foundations of the DST approach. He is widely recognized for his foundational work in conceptualizing DST through the development of the Seven Elements of Digital Storytelling, which has served as a guiding framework for educators and researchers implementing DST in various educational contexts. The second most influential scholar with 54 co-citations is Gregori-Signes C., with 658 link strengths. Her works feature significant implications for using DST in English language education. Norton B. is another scholar with notable contributions to the use of DST for language education. He received 53 co-citations with link strength of 448. Together, the scholars in this cluster have collectively advanced the conceptualization and practical application of the DST approach, emphasizing its relevance in fostering learner engagement, narrative competence, and language development in diverse educational settings.

3.2 Research Question 2: What are the most frequently occurring author keywords, and what do they reveal about the intellectual structure of DST research in English language learning context?

The second research question aims to explore the most repeated author keywords and the intellectual structure of DST research in English language learning context. To address this question, the most repeated keywords were analyzed. The next step is to carry out author keyword co-occurrence analysis using VOSviewer.

Most Repeated Author-Keywords

With a minimum threshold of 5 appearances, a total of 19 author keywords were extracted from the dataset containing 786 keywords. The 10 most frequently occurring terms were selected for further analysis of the prevailing thematic directions in the DST research landscape within

English language learning context. Table 3 presents these top keywords, ordered by frequency of occurrence and accompanied by their total link strength, which indicates how often each keyword co-occurs with others in the dataset. According to Firoozeh et al. (2020), variations of the same keyword should be treated as a single term, as they typically convey consistent meanings within a specific context. For this analysis, it was ensured that all keywords appeared in singular form, showing no semantic overlap to ensure consistency in thematic coding.

'EFL' emerged as the most dominant keyword (n = 25, link strength = 31), signifying that research on DST is largely focused on English as a Foreign Language context. 'English language learning' (n = 16) and 'multimodality' (n = 16) follow, suggesting a strong focus on how DST supports English language acquisition through multiple modes of communication. These keywords also possess high link strengths (23 and 21, respectively), indicating strong interconnections with other concepts in the network.

Notably, 'digital literacy' (n = 15), 'educational technology' (n = 14), and 'motivation' (n = 13) reflect ongoing scholarly interest in the digital competencies and affective dimensions involved in the DST process. Terms like 'writing' (n = 12), 'multiliteracies' (n = 11), and 'pedagogy' (n = 10) reinforce the pedagogical significance of DST as both a literacy practice and a teaching strategy. While 'creativity' appears slightly less frequently (n = 8), it still carries a meaningful link strength (12), highlighting its value in fostering learner engagement and expression.

Table 3: Top 10 most Repeated Author Keywords

Keywords	Frequency of occurrence	Total link strength
EFL	25	31
English language learning	16	23
Multimodality	16	21
Digital literacy	15	18
Educational technology	14	23
Motivation	13	20
Writing	12	14
Multiliteracies	11	13
Pedagogy	10	10
Creativity	8	12

The co-occurrence network map (Figure 3) visually depicts the clustering and proximity of these terms, providing a clear view of the intellectual structure of DST research in English language learning context.

The Intellectual Structure of the Field

The analysis of frequently co-occurring keywords provides valuable insights into the thematic composition and intellectual organization of research within a given field. According to Hallinger (2019), keyword co-occurrence offers a focused view of dominant topics and thematic trends. By mapping the relationships between keywords, the resulting network visualization highlights both the centrality of certain concepts and the intensity of their associations (Pillai et al., 2021). In the visualization, the size of each bubble corresponds to its frequency, while spatial closeness between terms reflects the strength of their co-occurrence. As shown in Figure 3, the conceptual landscape of DST research is organized into four distinct thematic clusters, each representing interconnected focal areas within the literature.

The Red cluster of keywords is centered on ‘digital storytelling’. This cluster focuses on the use of technology in the form of DST in English language pedagogy, content and language integration, and teacher education. Another significant research area emerged, reflecting the connection of digital literacy with DST in English language learning context.

The Green cluster highlights a focus of DST research on English language learning. Besides this, the cluster also reflects the integration of DST in English language learning context for building skills like creativity, literacy, multiliteracy, and identity, reflecting a broader pedagogical shift towards holistic language education.

The Blue cluster shows that research often tends to focus on the inherently multimodal nature of DST practices. This relationship indicates that researchers explore DST in conjunction with various modes of communication, such as text, images, audio, and video, highlighting its role as a rich, multimodal pedagogical tool. Since DST actively engages learners in the process, a prominent relation emerged between the use of DST for building student motivation, engagement, and collaboration in English language learning context.

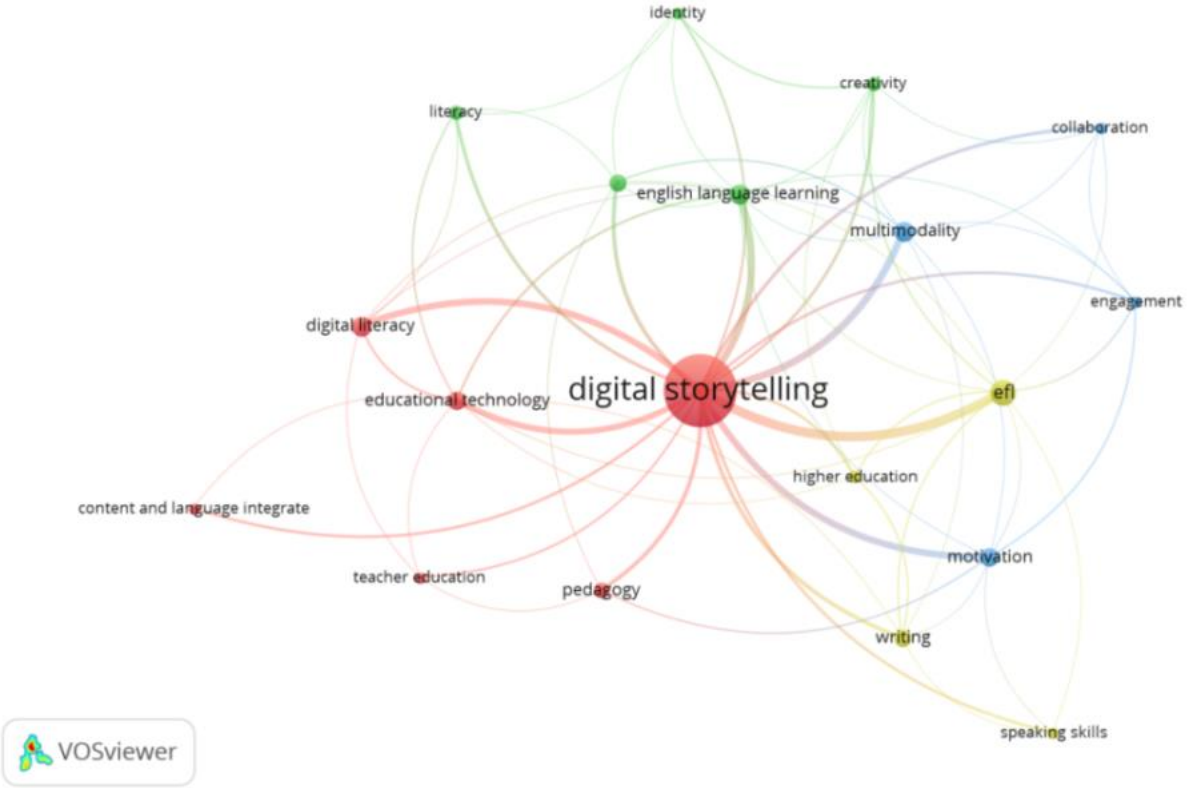

Figure 3: Author Keyword Co-Occurrence Map

The Yellow cluster highlights the concentration of research on the use of DST-based activities in EFL context. It also explores the inclusion of DST as an effective approach for improving writing and speaking skills, indicating the effectiveness of DST in fostering productive language skills. Since writing and speaking are integral components of the DST process, numerous studies have delved into how these skills are supported and improved through storytelling practices. The inclusion of the keyword ‘higher education’ suggests that while DST is applied across educational levels, there is a notable interest in its adoption within tertiary-level EFL instruction. This may be due to the emphasis on learner autonomy and digital literacy in higher education, all of which align well with the affordances of DST.

3.3 Research Question 3: What emerging trends and topical foci characterize the evolution and future directions of DST research in English language learning context?

The third research question aims to explore the emerging trends and topical foci that characterize the evolution and future directions of DST research in English language learning context. Building upon the keyword co-occurrence analysis, which identifies how frequently keywords appear across multiple documents and thus helps to reveal the intellectual structure and thematic orientation of the field (Hassan & Duarte, 2024), this research question extends the analysis to examine how these themes have developed over time.

The Emerging Research Trends and Topical Foci

The temporal overlay visualization of author keywords offers insight into how research on DST in English language learning context has evolved over time. This analysis serves as a critical lens for tracking conceptual developments within a research field. When keywords frequently co-occur across publications, they often signal interconnected themes or shared topical interests (Nicolas et al., 2020). In such visual representations, the color gradient reflects the time dimension, where the yellow-toned bubbles signify more recent topics, while purple-toned bubbles indicate earlier areas of interest. Additionally, the bubble size shows how often a keyword appears in the dataset, and the spatial proximity suggests thematic closeness or co-occurrence patterns (Punnakitikashem & Hallinger, 2020). These features offer a dynamic overview of both the past developments and emerging areas in the field.

As shown in Figure 4, topical interest in this domain has gradually expanded, demonstrating a shift from foundational themes to more practice-oriented areas. Due to layout constraints in VOSviewer, one keyword (‘speaking skills’) appears partially obscured by the legend in the overlay visualization. However, it has been fully considered in the analysis.

The earliest prominent keywords to emerge around 2017 include ‘identity’ and ‘multiliteracies’. These early focal points indicate that initial research explored the transformative potential of DST for personal expression and meaning-making, particularly in how learners construct their identities and engage with diverse literacies. This trend also signals a theoretical orientation toward DST, grounded in socio-cultural perspectives. While ‘identity’ appears on the temporal overlay map in 2017, its earliest occurrence in the dataset dates back to 2010 (e.g., Chong et al., 2010), pointing to an early foundational interest in the concept within DST research. Notably, in the dataset, ‘identity’ resurfaces in 2017, 2020, and again in 2024, suggesting a sustained, albeit episodic, scholarly engagement with identity through the lens of DST in English language learning context. In contrast, ‘multiliteracies’ demonstrates a more consistent presence, first appearing in 2011 and maintaining visibility almost annually thereafter. This steady trajectory reflects an enduring interest in how DST supports the development of multiple literacies in English language learning context, aligning with broader pedagogical shifts toward multimodal and inclusive literacy practices. In 2018, the trend shifted toward more curriculum-oriented concerns, with keywords such as ‘content and language learning’ and ‘teacher education’ gaining visibility. This indicates a growing interest in integrating DST within subject-based instruction and in exploring how teachers are prepared to incorporate DST in English language learning context.

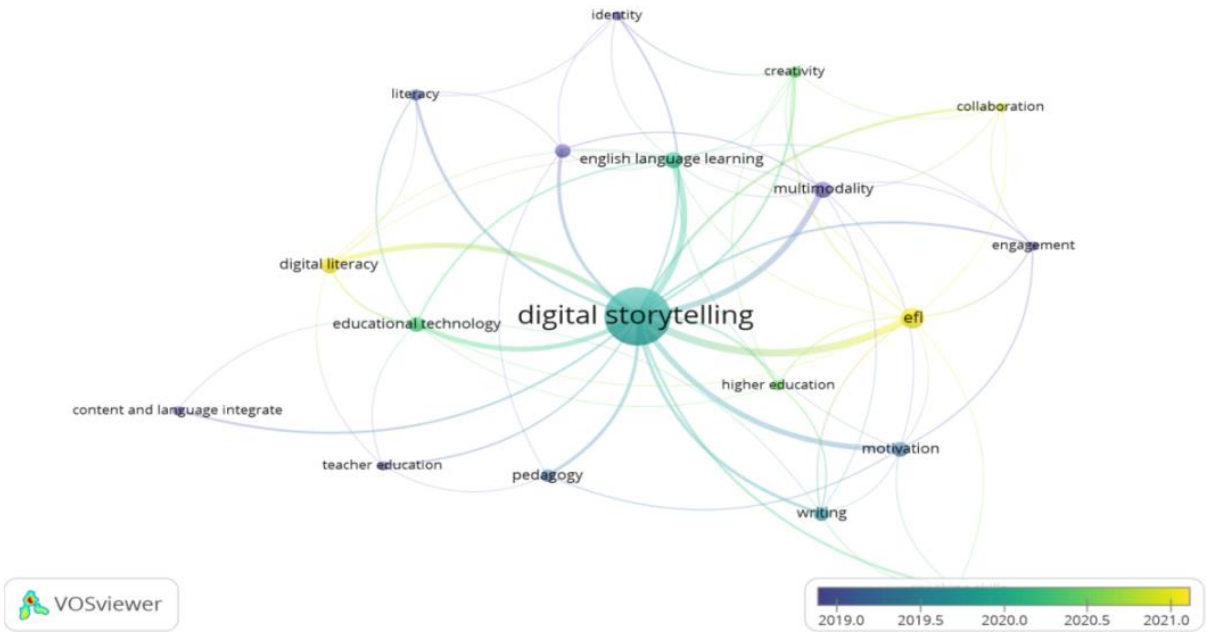

Figure 4: Temporal Overlay Map

The early phase of 2019 saw increased attention to instructional aspects, as highlighted by the emergence of terms like ‘pedagogy’, ‘literacy’, and ‘engagement’. These keywords suggest a developing research focus on how DST can be structured to support literacy development and increase student involvement in the learning process. Later in the same year, terms such as ‘digital storytelling’, ‘writing’, and ‘motivation’ emerged more prominently, making a pivotal moment when DST became a central theme rather than a peripheral tool, with scholars emphasizing its role in enhancing learners’ writing abilities and motivation (e.g., Azis & Husnawadi, 2020; Aljaraideh, 2020). While the keyword ‘digital storytelling’ appears more prominently around 2019 on the overlay visualization, it had already begun to surface in the literature as early as 2009, with sporadic appearances in 2010, 2012, and 2013. This early presence indicates that initial explorations into DST were already underway, though it was not until 2017 that scholarly interest began to accelerate more consistently. Its increasing prominence in 2019 onwards marks a shift toward viewing DST as a prominent pedagogical tool in English language learning context.

By early 2020, the research landscape diversified further with the inclusion of terms such as ‘educational technology’, ‘English language learning’, ‘creativity’, ‘speaking’, and ‘higher education’. This shift illustrates a move toward examining DST within technologically integrated and advanced educational contexts, particularly in tertiary institutions. The emphasis on creativity and speaking also reflects the orientation of DST-based activities towards productive and expressive language skills. In the latter part of 2020, ‘collaboration’ appeared as a significant keyword, highlighting a shift toward socially situated learning processes and the benefits of peer interaction in DST projects.

Finally, from 2021 onwards, keywords like ‘EFL’ and ‘digital literacy’ became central, indicating a consolidation of research on DST in EFL contexts and a strong emphasis on the 21st-century literacies required for digital participation. The appearance of EFL as a dominant term also points to DST’s growing relevance in non-native English-speaking regions.

This chronological progression illustrates how the field has evolved from conceptual and theoretical inquiries to a rich and multifaceted domain. The map shows not only how interest

has expanded but also how the field is becoming more complex, reflecting deeper engagement with DST's pedagogical, cognitive, and social dimensions.

4. Future Research Directions

Based on the findings of this bibliometric and science mapping analysis, several avenues for future research emerge. First, studies could further explore the application of DST across diverse English learning contexts, including multilingual and bilingual settings, to examine its broader pedagogical impact. Second, while this study focused on author co-citation and keyword patterns, future research could integrate qualitative content analysis to deepen the understanding of conceptual linkages and the evolution of thematic clusters over time. Third, emerging research trends and topical foci identified in this study suggest the potential for interdisciplinary investigations, combining DST with technologies such as artificial intelligence, virtual reality, or mobile-assisted language learning. Fourth, examining DST implementation in informal or out-of-class learning environments could provide insights into learner engagement, autonomy, and digital literacy development. Finally, longitudinal studies tracing the influence of highly cited authors and seminal works could further clarify the intellectual trajectory of the field and guide strategic collaborations among scholars. These directions offer promising pathways to enrich the research landscape of DST in English learning and teaching.

5. Conclusion

The examination of co-citation networks uncovered an intricate web of scholarly relationships, concluding in the emergence of four distinct clusters, which highlight the intellectual foundations and influential authors in the field of DST research. Furthermore, an analysis of 786 author keywords revealed the top 10 most frequently used terms, providing valuable insights into the conceptual landscape of the domain. This process led to the identification of four thematic clusters, illustrating the intellectual diversity and concentrated areas of research interest within DST scholarship. The analysis of research trends emphasizes recent developments in the use of DST, particularly in EFL contexts, collaborative learning, and the cultivation of digital literacy. This science mapping study sheds light on the structure, evolution, and emerging directions of DST research, offering a comprehensive understanding of the field. These findings provide actionable insights for researchers, educators, and policymakers, guiding future scholarly exploration, promoting evidence-based pedagogical practices, and supporting strategic collaborations to further advance the application of DST in English learning and teaching.

Acknowledgement

The authors sincerely appreciate the support and resources provided by Universiti Sains Malaysia, which greatly facilitated the completion of this study.

Conflict of Interest

The authors confirm that there are no conflicts of interest associated with the publication of this study.

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