Int. J. Educ. Found. 03 (03) 2026. 600-609 DOI: 10.33687/ijef.003.03.00163

Available Online at EScience Press
International Journal of Education Foundations
ISSN: 3078 - 7866 (Online), 3078 - 7858 (Print)
https://ijef.esciencepress.net

RESEARCH ARTICLE

Mapping the Landscape of IT Based Integrated Thematic Learning in Elementary Schools : A Bibliometric Analysis

[a] Muhammad Iqbal Al Ghozali, [b]Firmansyah, [c]Moses Adeleke Adeoye, [a]Nur Asyifa
[a] *Universitas Islam Bunga Bangsa Cirebon, Indonesia*
[b] *Universitas Islam Raden Fatah Palembang, Indonesia*
[c] *Al Hikmah University, Ilorin, Nigeria*

Corresponding Author
Muhammad Iqbal Al Ghozali, Email: m.iqbal.alghozali@bbc.ac.id

Author's Contributions
All authors contributed equally to this research.

Article History
Received February 17, 2026; Accepted: April 14, 2026; Published: July 24, 2026.

ABSTRACT

This study aims to map trends, thematic relationship patterns, and author and institutional contributions in research on IT based integrated thematic learning in elementary schools through bibliometric analysis, in order to identify dominant issues such as teachers' technological skills and the availability of supporting facilities in schools, as well as research gaps that can be explored further. The method used is a Systematic Literature Review (SLR) following the PRISMA protocol, supported by bibliometric analysis using Covidence and VOSviewer software. Articles were analyzed through the Google Scholar database with the help of the Publish or Perish application, with an initial search yielding 173 articles that were then filtered following the PRISMA protocol (duplicate removal and screening of titles, abstracts, and keywords) until 25 final articles were obtained for further analysis. The analysis was conducted to identify thematic relationships, keyword trends, and author and institutional contributions to the development of this topic. The results show that the integration of technology in thematic learning in elementary schools makes a positive contribution to improving learning effectiveness, student engagement, and the strengthening of 21st century competencies such as critical, collaborative, and creative thinking. The bibliometric visualization indicates that the keywords "technology", "media", and "elementary school" occupy a central position in the research relationship network. In addition, the aspects of "teacher" and "digital media development" also emerged as dominant variables, underscoring the importance of teacher readiness and digital literacy in the implementation of technology based learning. Nevertheless, implementation challenges were still found, such as limited technological infrastructure in schools, teachers' low mastery of ICT, and a lack of sustained training and policy support. Based on these findings, the study recommends the need for synergy among the government, schools, and higher education institutions in providing professional training, strengthening infrastructure, and enacting affirmative policies that encourage digital transformation in the elementary education environment. This study is expected to serve as a scientific basis and strategic reference for the development of technology based thematic learning media, in order to create learning that is adaptive, innovative, and relevant to the demands of future education.

Keywords: Integrated Thematic Learning, Information and Communication Technology, Bibliometrics, VOSviewer, Teacher Digital Literacy, Elementary School

INTRODUCTION

Advances in technology have brought about changes in the world of education; technology has had an impact on global change, thereby influencing learning. Law (UU) Article 1, Paragraph 20 of Law Number 20 of 2003 concerning the National Education System explains

that learning is a process of interaction between learners and learning resources within a learning environment. According to Munandar, learning must be designed in such a way as to fully encourage children's creativity. Thus, learners will be more active, learning objectives can be achieved effectively, and the learning process takes place in an enjoyable atmosphere. The environment around students also has a major influence on the creativity that can be produced. When learners feel comfortable, achieving learning objectives becomes easier (Aulina 2018). In line with this view, Oemar argued that learning is a combination consisting of various elements, including worldly aspects, materials, facilities, equipment, and procedures. All of these elements influence one another in efforts to achieve learning objectives (Salsabila 2024).

Meanwhile, according to Aunurrahman, learning is a state or activity designed to create situations that encourage students to be more motivated to learn (Miftahussaadah and Subiyantoro 2021). This view is in line with Nasution's statement that learning is an activity that organizes or arranges the environment as well as possible and connects it with the child so as to establish an effective learning process (Firmansyah and Triwahyuni n.d.). From the various theories put forward by the experts above, it can be concluded that learning is a process designed comprehensively to create a conducive and enjoyable atmosphere for students. This environment covers various aspects, both physical and procedural, that are arranged to encourage students' motivation, activeness, and creativity as a whole. Thus, learning objectives can be achieved effectively through positive interaction between students and their learning environment.

As put forward by Jean Piaget in his constructivist theory, which emphasizes that learners actively construct their own understanding and knowledge through experience and interaction with their environment (Suryana, Aprina, and Harto 2022). Learners are thus an important part of the learning process, not merely as recipients of information, but also as active participants in learning activities. In the learning process, learners are expected to be actively involved, whether through discussion, collaboration, or independent exploration.

On the other hand, educators play a very important role as facilitators and directors in the learning process. The teacher's task is not only to deliver material, but also to create learning experiences that are interesting and relevant for learners. In this regard, teachers are expected to implement innovative and varied learning methods that can attract learners' interest and encourage their critical thinking. In addition to learning methods, media are also very necessary in learning activities, because media can create an enjoyable and more meaningful learning atmosphere, so that students can understand the material easily. The use of learning media must keep pace with the times, as it will affect the quality of students' learning outcomes.

Teaching aids such as learning media greatly facilitate students in the learning process. Such media can transform abstract concepts into something more concrete and tangible, and make it easier for teachers to deliver material in class, thereby making learning more enjoyable. This view is in line with the theory put forward by Rusyan, who stated that learning media are basically used to create a more effective and efficient communication process in teaching and learning activities (Andriani et al. 2024). The role of learning media is very important, especially at the elementary school level, because concrete evidence is needed to understand the material, making media necessary. However, teachers often make too little use of learning media, focusing instead only on discussion and lecturing, which results in a lack of student motivation to learn. Amid increasingly advanced developments, particularly in the field of education, creating learning media no longer requires searching for materials tailored to the teacher's specific needs; instead, teachers can use websites or applications that make it easier to deliver material, create interactive quizzes, interactive student worksheets (LKPD), and more.

Technology based learning can increase students' activeness, creativity, and motivation to learn. In the digital era, students are more skilled at using smartphones, but they often use them not for learning purposes but for entertainment that is sometimes inappropriate to view. Teachers must therefore provide education related to technology so that students can make good use of it.

Integrated thematic learning is learning that, in its implementation, involves several subjects combined through the use of a theme. The approach used is a scientific approach aimed at broadening knowledge, fostering a positive attitude, and improving students' skills.

IT based integrated thematic learning can provide opportunities for students who may not stand out in a traditional educational setting to shine through the use of technology. They can be more actively involved in

seeking learning materials through various applications and software suited to their interests and talents. In this way, students gain not only academic knowledge but also practical skills relevant to the demands of the future workforce. Therefore, integrating thematic learning with information and communication technology can enrich students' learning experiences and prepare them to face ever evolving global challenges.

However, there are several obstacles when implementing IT based integrated thematic learning. As a result of research conducted by (Hanannika and Sukartono 2022), it was found that teachers do not have a good command of technology and only present material in written form, which makes students feel bored. Another obstacle in implementing technology based integrated thematic learning is the limited technological facilities in schools. Therefore, the researchers were interested in conducting this study in the hope that the use of technology in thematic learning would make learning effective and improve the quality of learning in line with the times.

The solution offered is therefore for schools to establish cooperation with the government so that it can help schools identify educational institutions in need of funding; school principals must submit requests to the government to obtain adequate educational facilities and infrastructure. Teachers must then attend training on the use of digital technology to improve their mastery of technology, as this is highly beneficial for effective implementation and communication.

Based on previous research conducted by (Hanannika and Sukartono 2022), the application of ICT based learning media in thematic learning at the elementary school level still needs to be improved, as it faces several obstacles, namely that teachers have not yet mastered technology, so they still use textbooks as teaching materials with the lecture method, and ICT facilities and media remain limited. It is therefore important for teachers to attend ICT training such as seminars, workshops, socialization sessions, and others. In this way, teachers can equip themselves with various ICT based facilities and media that can support learning activities to improve the quality of teaching.

Meanwhile, research conducted by (Alifah et al. 2023) shows that the use of learning media that incorporates up to date digital technology can improve student learning outcomes. This is evidenced by the ease with which students obtain and understand learning material, the reduction of student boredom, and the increased focus of students in absorbing learning content, which can of course be adapted to current needs and changes.

Research conducted by (Kharis 2019) shows an increase in student activeness in the learning process, with activeness data indicating that in the pre cycle stage, 17 out of 33 students (51.51%) were active, increasing to 81.82% (27 students) in Cycle I, and further increasing to 93.94% (31 students) in Cycle II. This increase in student activeness occurred because students had understood the concept of Thematic learning through the steps contained in Picture and Picture learning, and students were more enthusiastic in following the learning process.

Based on the results of the research conducted by the three researchers above, it can be concluded that IT based learning media has an influence on the learning process in thematic subjects and makes learning effective and of high quality. Previous research only discussed a few IT based learning media. Although there are significant challenges, such as teachers' lack of technological mastery and limited facilities, this study also shows that with the right approach and appropriate use of media, student learning outcomes can improve. What distinguishes this study is that it examines IT based thematic learning as a whole in terms of learning media; there are many digital based learning media, but teachers frequently use only the same few, such as Classroom, Canva, YouTube, and others. There is therefore a need to develop IT based media that are rarely used by teachers.

This study aims to map trends, thematic relationship patterns, and author and institutional contributions in research on IT based integrated thematic learning in elementary schools through bibliometric analysis, in order to identify dominant issues such as teachers' technological skills and the availability of supporting facilities in schools, as well as research gaps that can be explored further.

RESEARCH METHODOLOGY

Search Design

This study uses a Systematic Literature Review (SLR) approach, assisted by Covidence software to facilitate the review of articles in accordance with publication standards and predetermined inclusion and exclusion criteria.

Bibliometric analysis is a quantitative method used to assess and describe relationships between disciplines, research trends, and scientific publications. This technique enables the identification of research

progress, key contributions in the literature, and global scientific relationship networks.

The articles reviewed were drawn from the Google Scholar–indexed database accessed through Publish or Perish, covering the period from 2019 to 2024, in order to maintain relevance with the latest issues concerning IT Based Thematic Learning at the Elementary School level.

The search results yielded 173 articles meeting the search criteria. This study followed the Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) guidelines to ensure transparency and quality of the process, with the main stages comprising identification, screening, and eligibility assessment of references.

The references analyzed used VOSviewer version 1.6.20 to map author collaboration, citations, and keyword relationships, with the aim of identifying research gaps that can be explored in the future.

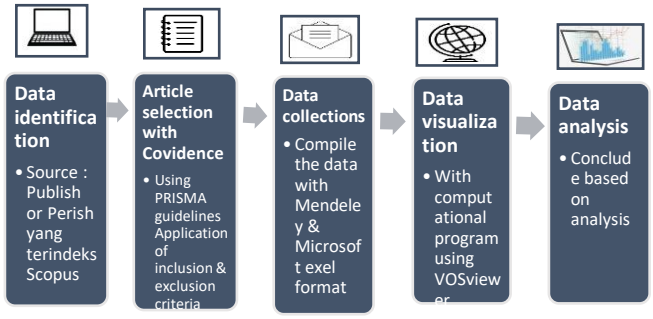


Figure 1. Search Process

Search Strategy

In the initial stage, the literature review was conducted through internationally recognized online databases. Researchers used articles indexed by Google Scholar through the Publish or Perish database to find and collect relevant references. This database was chosen for its high quality, broad coverage, and intuitive search features that facilitate access to the latest information on IT based thematic learning at the elementary school level, as shown in Table 1.

Table 1. Database Search Strategy

Filter	Description
Year	2019 - 2024
Subject Area	*Education*
Search String	"Thematic Learning" and "Information Technology" and "Elementary School"
Source Type	*Journal*
Language	Indonesian
Document Type	*Article (Open access)*
Rank Type	Indexed by Google Scholar

The database search through Publish or Perish yielded 173 articles indexed by Google Scholar, which were then analyzed to ensure their alignment with the research objectives and questions. This review followed the Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) guidelines to ensure that the selected articles had passed through screening stages, duplicate removal, and selection based on title, abstract, and keywords, thereby minimizing bias and error in data collection (Page et al., 2021).

Data Selection Criteria

At this stage, literature selection was carried out rigorously by applying inclusion and exclusion criteria to obtain articles relevant to the keywords aligned with the research focus. According to Sargeant & O'Connor (2020), the literature selection process includes initial identification and relevance evaluation of documents to maintain the validity of the research. The following is an explanation of the systematic selection steps listed in Table 2 below.

Table 2. Inclusion and Exclusion Criteria

Criteria	*Inclusion*	*Exclusion*
Article title and content	Related to IT based Thematic Learning in elementary schools	Has an irrelevant title
Year of publication	Published between 2019 - 2024	Published outside the specified range
Type of publication	Journal articles only	Reviews, editorials, and non empirical studies
Language	Indonesian & English	Other
Article field of study	*Thematic Learning*	Other
Participants	Elementary school teachers & elementary school students	Other

Accessibility	Full text or open access articles	Articles requiring payment
Journal index	Only articles indexed by Google Scholar	Other

Data Selection Process

The data selection process is a crucial step in maintaining the integrity and consistency of the research results. This stage begins with identifying themes relevant to the research objectives, followed by collaborative discussion in the event of differences in selection. The next stage involves data selection assisted by software, such as Covidence, used to select data so that accurate results are obtained for further analysis. This literature analysis was conducted in November 2024 and consists of three stages, namely:

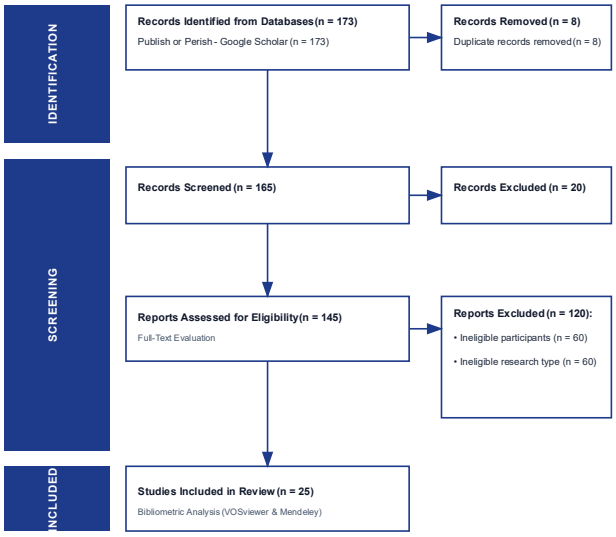


Figure 1. Data Selection Process

In the first stage, using predetermined keywords, the researchers obtained 173 articles from the Google Scholar database via the Publish or Perish tool. The keywords used were “Thematic Learning”, along with “Information Technology” and “Elementary School”. After the identification process, 8 duplicate articles were removed, leaving 165 articles. Selection based on the relevance of titles, keywords, and abstracts eliminated 20 articles, leaving 145 articles for further eligibility review. From this review, 120 articles were eliminated due to unsuitable participants (n = 60) and unsuitable research types (n = 60), leaving 25 articles that met the criteria and were considered in the final stage. To maintain the reliability of the screening process, the selection of titles, abstracts, and keywords was carried out independently by 2 reviewers without knowledge of each other's assessment results (blind screening). Differences in screening results between reviewers were resolved through collaborative discussion until consensus was reached, and the level of inter rater reliability was calculated using Cohen's Kappa at 0.80, which falls into the reliable category. If consensus was not reached, the final decision was left to a third reviewer acting as arbiter.$n = 60n = 60$

Data Analysis

All articles that met the research criteria were then exported in RIS format and imported into Mendeley for metadata checking. The data were then visualized using VOSviewer software to map the co occurrence relationships between keywords, making it possible to identify dominant terms, thematic clusters, and thematic relationship patterns within the corpus of articles analyzed. The resulting keyword network map served as the basis for identifying major thematic trends, in line with findings that IT based Thematic Learning research in Elementary Schools can significantly improve learning effectiveness and student participation through flexibility of time and place, although challenges remain related to limited technological facilities and low digital literacy among educators in some regions (Castro, 2019). The final stage involved reviewing the existing literature and proposing future directions for the development of IT based Thematic Learning at the Elementary School level, with the aim of improving the effectiveness of technology use in learning and improving student learning outcomes (GITAM Deemed to be University, India, & Aravind, 2024b).

RESULTS

From the 25 articles that passed PRISMA selection as outlined in Figure 1, the following 25 articles are presented as representative examples reflecting the variety of themes, types of IT based media, and grade levels examined in this research corpus (Table 3).

Table 3. 25 Articles Analyzed in the Bibliometric Study

No	Author(s) (Year)	Article Title	Source (Journal, Vol(No): pp.)
1	Wati & Arwin (2020)	Improving the Integrated Thematic Learning Process Using the Discovery Learning Model in Grade IV Elementary School	e Journal Pembelajaran Inovasi, Jurnal Ilmiah Pendidikan Dasar, 8(4): 118–131

2	Amalia (2020)	Using Information and Communication Technology (ICT) in the Learning Process in Elementary Schools	Jurnal Pendidikan dan Konseling (JPDK), 2(1): 36–39
3	Rejeki, Adnan, & Siregar (2020)	The Use of Learning Media in Integrated Thematic Learning in Elementary Schools	Jurnal Basicedu, 4(2): 337–343
4	Widiastika, Hendracipta, & Syachruroji (2020)	Development of Android Based Mobile Learning Media on the Concept of the Circulatory System in Elementary Schools	Jurnal Basicedu, 5(1): 47–64
5	Rozali & Ramadan (2021)	Learning Heat and Its Transfer with Power Point Learning Media for Grade V Students of Elementary School	International Journal of Elementary Education, 5(2): 98
6	Romi (2021)	Development of Technology Based Interactive Learning Media to Improve Elementary School Students' Learning Outcomes	Jurnal Pendidikan Tambusai, 5(2): 3019–3026
7	Sari (2021)	The Impact of Integrated Thematic Learning on Students' Social Attitudes	Jurnal Pendidikan Karakter, 13(2): 174–188
8	Nopiani, Suarjana, & Sumantri (2021)	Interactive E Module for Thematic Learning, Theme 6 Sub theme 2 'The Greatness of My Dreams'	Mimbar PGSD Undiksha, 9(2)
9	Haryanto (2022)	The Use of Interactive Multimedia in Elementary School Thematic Learning to Improve Teacher Effectiveness as a Facilitator	Jurnal Inovasi Teknologi Pendidikan, 12(1): 45–57
10	Khairunnisa & Ain (2022)	Development of Interactive Multimedia for Thematic Learning of Elementary School Students	Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini, 6(4): 2990–3002
11	Maulani, Nuraisyah, Zarina, Velinda, & Aeni (2022)	Analysis of the Use of Video as Integrated Learning Media on Student Learning Motivation	Jurnal Pendidikan dan Teknologi Indonesia, 2(1): 539–546
12	Deria & Wardani (2022)	Development of Interactive PowerPoint Learning Media to Improve Grade V Elementary School Students' Understanding of Science Concepts	Jurnal Profesi Pendidikan Dasar, 9(2): 188–196
13	Salsabila & Syaban (2022)	Development of an Interactive E Module on Indonesia's Natural Landscapes in Elementary Schools	Jurnal Basicedu, 6(5): 7896–7905
14	Daryanto dkk. (2022)	Increasing Elementary School Students' Learning Motivation through the Use of Interactive Liveworksheet Based Student Worksheet Media in the Industrial Revolution 4.0 Era	Jurnal Pengabdian UNDIKMA, 3(2): 319–326
15	Budianti, Rikmasari, & Oktaviani (2023)	The Use of Interactive PowerPoint Media to Improve Elementary School Students' Learning Outcomes	Jurnal Inovasi Pendidikan dan Pembelajaran Sekolah Dasar, 7(2): 112–120
16	Mulyanto & Mustadi (2023)	Interactive PowerPoint Learning Media in Social Studies for Grade V Elementary School	Jurnal Penelitian dan Pengembangan Pendidikan, 7(1): 23–31
17	Pradana & Rachman (2023)	Implementation of PowerPoint Based Digital Learning Media to Increase Elementary School Students' Activeness	Jurnal Pendidikan Dasar Cakrawala, 8(2): 133–142
18	Putri & Iskandar (2023)	Development of Interactive PowerPoint Learning Media in Thematic Learning to Improve Grade V Elementary School Students' Cognitive Learning Outcomes	Journal on Education, 5(3): 9456–9463
19	Yulianti (2023)	The Effect of Integrated Thematic Learning on Elementary School Students' Literacy Skills	Jurnal Literasi Pendidikan, 6(3): 217–230
20	Widodo & Arifin (2023)	Implementation of Integrated Thematic Learning with the STEAM Approach in Elementary Schools	Jurnal STEAM Pendidikan, 5(2): 133–145
21	Yustina & Khosiyono (2023)	The Effect of Quizizz Learning Media on Grade VI Elementary School Students' Learning Motivation	Jurnal Pendidikan Dasar Flobamorata, 4(2): 593–598
22	Gracia & Astimar (2024)	Development of PBL Based Interactive Multimedia in Natural and Social Sciences (IPAS) Learning in Elementary Schools	Jurnal Pendas, 8(1): 60–72
23	Simorangkir, Sinaga, Limbong, &	Analysis of the Use of Interactive Digital Media to Improve Student Learning Outcomes in	Trapsila: Jurnal Pendidikan Dasar, 5(2): 10

	Nazwa (2024)	Mathematics Learning in Elementary Schools	
24	Widiastari & Puspita (2024)	The Use of Digital Learning Media in Developing Grade IV Students' Learning Motivation at SD Inpres 2 Nambaru	Elementary: Jurnal Inovasi Pendidikan Dasar, 4(4): 215–222
25	Rohmah, Widiastuti, & Agustina (2024)	Thematic Learning: Development of Video Media for Grade V Elementary School Students' Discussion Skills	Jurnal Nakula: Pusat Ilmu Pendidikan, Bahasa dan Ilmu Sosial

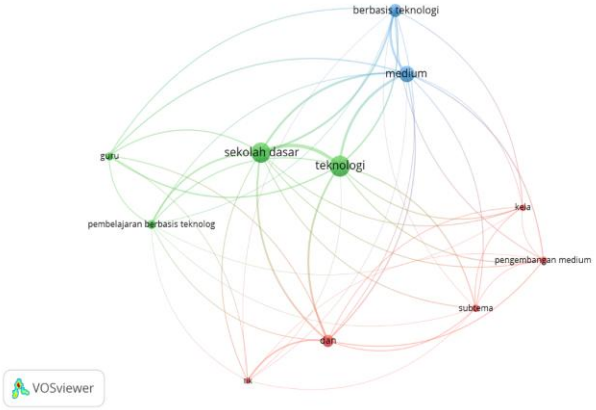


Figure 2. Co occurrence of Keywords Visualization

Based on the Co occurrence of Keywords visualization shown in the network map, terms such as “technology”, “media”, and “elementary school” occupy a central position and form the main nodes in the keyword relationship network. This reflects that, across a large number of the scientific publications analyzed, the topic of technology use in learning activities at the elementary education level is a dominant and highly relevant issue for further study.

Keywords such as “teacher”, “technology based learning”, and “media development” also have high frequency and are closely connected to one another, indicating that the research focus is directed not only at the technological media itself, but also at the key actor in the education process the teacher and how teachers are able to integrate digital media into effective, creative, and innovative learning strategies.

The dominance of the color green in this visualization indicates that words such as “elementary school”, “teacher”, and “technology” are the keywords with the highest occurrence and the widest range of connectivity. This shows that the integration of technology into the learning process at the elementary school level has become a major concern in various contemporary studies. In addition, the high frequency of these words indicates a scientific consensus on the importance of digital transformation in elementary education as a response to the changing times and the demands of the 21st century.

Meanwhile, the group of words marked in blue, such as “media”, “technology based”, and “learning”, forms a cluster that emphasizes the importance of an instructional approach that uses technology as a learning aid. This suggests a growing interest in the use of interactive and adaptive digital media capable of improving students' understanding of the subject matter.

In the red colored group, there is a connection between words such as “class”, “sub theme”, and “media development”, which shows that the development of learning media cannot be separated from the specific context of classroom learning, including curriculum structure and thematic content. This indicates that the learning media developed must be contextual, relevant, and able to address the concrete needs of integrated thematic learning implemented in elementary schools.

Interestingly, the keyword “ICT” (Information and Communication Technology) also shows strong connectivity with a number of other words such as “media development” and “technology”, indicating that the role of ICT in education is becoming increasingly significant. ICT is viewed not merely as a tool, but also as a key driver in renewing learning methods, improving the quality of teaching learning interaction, and expanding access to richer and more varied digital learning resources.

Overall, the results of this visualization provide a more comprehensive understanding of current trends, focuses, and directions in educational research, particularly regarding the integration of technology into learning in elementary schools. These findings reinforce the urgency and relevance of developing adaptive and engaging ICT based learning media that meet the needs of 21st century students. Thus, innovation in the design of technology based learning media is not merely an option, but a strategic necessity in addressing the challenges of education today.

DISCUSSION

The keyword visualization findings are consistent with the results of a number of primary articles reviewed in this study. For example, the study by Hanannika and

Sukartono (2022) confirms the central position of the keywords “teacher” and “technology” by finding that elementary school teachers' ICT mastery remains low, so that ICT based thematic learning has not yet run optimally. In line with this, Alifah et al. (2023) reported that the use of digital learning media in thematic learning consistently improves student learning outcomes, which reinforces the central position of the keywords “media” and “technology based learning” on the bibliometric map. In terms of method, the majority of the primary articles reviewed were dominated by classroom action research designs and descriptive quantitative studies, as reflected in the study by Kharis (2019), which applied an IT based Picture and Picture model with a cyclical design. Meanwhile, the articles by Andriani et al. (2024) and GITAM & Aravind (2024) highlight a research gap in the form of still limited studies evaluating the long term impact of digital media use on elementary school students' 21st century competencies—a gap also reflected in the rare appearance of keywords related to “evaluation” or “long term impact” in the co occurrence map. This cross article comparison confirms that although thematic trends show consensus on the importance of technology integration, gaps remain in the sustainability of teacher training and the longitudinal measurement of learning impact.

CONCLUSION

Based on the results of the literature review and bibliometric analysis of research trends on IT based integrated thematic learning at the elementary school level in Indonesia, it can be concluded that the integration of technology into elementary education is not merely a passing trend, but a strategic necessity in addressing the challenges of educational transformation in the digital era. The application of technology, particularly in the form of digital and interactive learning media, has been shown to improve the effectiveness of the learning process, strengthen students' active participation, and build their motivation and engagement more optimally.

The analysis shows that the use of IT based media in thematic learning has a positive impact on students' ability to understand material comprehensively and contextually. Technology enables the delivery of material that is more varied, visual, and flexible in terms of time and place of learning. This supports the creation of learning that is more adaptive to students' characteristics and to the times, and is able to stimulate critical, collaborative, and creative thinking skills.

Nevertheless, a number of significant obstacles remain in its implementation, such as low levels of digital literacy among educators, limited technological infrastructure in schools, and a lack of sustained institutional support. Therefore, an integrated strategy is needed among schools, the government, and higher education institutions to provide ongoing training for teachers and to work toward the provision of facilities that support technology based learning.

Thus, IT based integrated thematic learning functions not only as a pedagogical instrument but also as an important foundation for creating a more inclusive, dynamic education ecosystem that is relevant to global demands. This study is expected to serve as a stepping stone for improving the quality of learning in elementary schools and as a reference for further research in the development of educational media and technology.

REFERENCES

Alifah, Hasna Nur et al. 2023. “Systematic Literature Review: Pengaruh Media Pembelajaran Digital Pada Pembelajaran Tematik Terhadap Hasil Belajar Siswa SD.” *Jurnal Ilmiah Dan Karya Mahasiswa* 1(3): 103–15.

Andriani, Anisa, Ditami Ayu Saputri, Ria Hopipah, and Tiara Puspa Dewi. 2024. “Pentingnya Media Pembelajaran Untuk Meningkatkan Minat Belajar Siswa SDN 63/X Nibung Putih.” *Journal on Teacher Education* 5(3): 215–22.

Aulina, Choirun Nisak. 2018. “Penerapan Metode Whole Brain Teaching Dalam Meningkatkan Motivasi Belajar Anak Usia Dini.” *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini* 2(1): 1.

Amalia, Ilma. 2020. “Menggunakan Teknologi Informasi Dan Komunikasi (TIK) Dalam Proses Pembelajaran Di Sekolah Dasar.” *Jurnal Pendidikan Dan Konseling (JPDK)* 2(1): 36–39.

Castro, Robin. 2019. “Blended Learning in Higher Education: Trends and Capabilities.” *Education and Information Technologies* 24(4): 2523–46.

Budianti, Yuni, Roro Rikmasari, and Dinda Ayu Oktaviani. 2023. “Penggunaan Media PowerPoint Interaktif Untuk Meningkatkan Hasil Belajar Siswa Sekolah Dasar.” *Jurnal Inovasi Pendidikan Dan Pembelajaran Sekolah Dasar* 7(2): 112–120.

Daryanto, Joko, Rukayah, Sularmi, Tri Budiharto, Idam

Ragil Widianto Atmojo, Roy Ardiansyah, and Dwi Yuniasih Saputri. 2022. “Meningkatkan Motivasi Belajar Peserta Didik Sekolah Dasar Melalui Pemanfaatan Media LKPD Interaktif Berbasis Liveworksheet Pada Masa Revolusi Industri 4.0.” *Jurnal Pengabdian UNDIKMA* 3(2): 319–326.

Deria, M. D., and D. S. Wardani. 2022. “Pengembangan Media Pembelajaran PowerPoint Interaktif Untuk Meningkatkan Kemampuan Pemahaman Konsep IPA Siswa Kelas V Sekolah Dasar.” *Jurnal Profesi Pendidikan Dasar* 9(2): 188–196.

Firmansyah, Irman, and Heti Triwahyuni. “Evaluasi Proses Pembelajaran Dengan Pendekatan Systems Thinking.” : 31–38.

GITAM Deemed to Be University, India, and B. Suraj Aravind. 2024. “Exploring the Challenges and Opportunities of Blended Learning in a Technology Enabled Education Environment.” *Journal of Effective Teaching and Learning Practices* 1(1): 10–19.

Gracia, D. D., and N. Astimar. 2024. “Pengembangan Multimedia Interaktif Berbasis PBL Pada Pembelajaran IPAS Di Sekolah Dasar.” *Jurnal Pendas* 8(1): 60–72.

Hanannika, Laudhira Kinantya, and Sukartono Sukartono. 2022. “Penerapan Media Pembelajaran Berbasis TIK Pada Pembelajaran Tematik Di Sekolah Dasar.” *Jurnal Basicedu* 6(4): 6379–86.

Haryanto, A. 2022. “Pemanfaatan Multimedia Interaktif Dalam Pembelajaran Tematik Sekolah Dasar Untuk Meningkatkan Efektivitas Guru Sebagai Fasilitator.” *Jurnal Inovasi Teknologi Pendidikan* 12(1): 45–57.

Khairunnisa, K., and S. Q. Ain. 2022. “Pengembangan Multimedia Interaktif Pembelajaran Tematik Siswa Sekolah Dasar.” *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini* 6(4): 2990–3002.

Kharis, Ahmad. 2019. “Upaya Peningkatan Keaktifan Siswa Melalui Model Pembelajaran Picture and Picture Berbasis IT Pada Tematik.” *Mimbar PGSD Undiksha* 7(3).

Maulani, S., N. Nuraisyah, D. Zarina, I. Velinda, and A. N. Aeni. 2022. “Analisis Penggunaan Video Sebagai Media Pembelajaran Terpadu Terhadap Motivasi Belajar Siswa.” *Jurnal Pendidikan Dan Teknologi Indonesia* 2(1): 539–546.

Miftahussaadah, Miftahussaadah, and Subiyantoro Subiyantoro. 2021. “Paradigma Pembelajaran Dan Motivasi Belajar Siswa.” *Islamika* 3(1): 97–107.

Mulyanto, S., and A. Mustadi. 2023. “Media Pembelajaran PowerPoint Interaktif Pada Mata Pelajaran IPS Kelas V Sekolah Dasar.” *Jurnal Penelitian Dan Pengembangan Pendidikan* 7(1): 23–31.

Nopiani, R., I. M. Suarjana, and M. Sumantri. 2021. “E Modul Interaktif Pada Pembelajaran Tematik Tema 6 Subtema 2 Hebatnya Cita Citaku.” *Mimbar PGSD Undiksha* 9(2).

Page, Matthew J., Joanne E. McKenzie, Patrick M. Bossuyt, Isabelle Boutron, Tammy C. Hoffmann, Cynthia D. Mulrow, Larissa Shamseer, Jennifer M. Tetzlaff, Elie A. Akl, Sue E. Brennan, Roger Chou, Julie Glanville, Jeremy M. Grimshaw, Asbjørn Hróbjartsson, Manoj M. Lalu, Tianjing Li, Elizabeth W. Loder, Evan Mayo Wilson, Steve McDonald, Luke A. McGuinness, Lesley A. Stewart, James Thomas, Andrea C. Tricco, Vivian A. Welch, Penny Whiting, and David Moher. 2021. “The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews.” BMJ 372: n71.

Pradana, E. D., and A. Rachman. 2023. “Implementasi Media Pembelajaran Digital Berbasis PowerPoint Dalam Meningkatkan Keaktifan Siswa SD.” *Jurnal Pendidikan Dasar Cakrawala* 8(2): 133–142.

Putri, A. M., and R. Iskandar. 2023. “Pengembangan Media Pembelajaran Powerpoint Interaktif Dalam Pembelajaran Tematik Untuk Meningkatkan Hasil Belajar Kognitif Siswa Di Kelas V Sekolah Dasar.” *Journal on Education* 5(3): 9456–9463.

Rejeki, R., M. F. Adnan, and P. S. Siregar. 2020. “Pemanfaatan Media Pembelajaran Pada Pembelajaran Tematik Terpadu Di Sekolah Dasar.” *Jurnal Basicedu* 4(2): 337–343.

Rohmah, M., S. Widiastuti, and D. K. Agustina. 2024. “Pembelajaran Tematik: Pengembangan Media Video Untuk Kemampilan Berdiskusi Siswa Di Kelas V Di Sekolah Dasar.” *Jurnal Nakula: Pusat Ilmu Pendidikan, Bahasa Dan Ilmu Sosial*

Romi, R. 2021. “Pengembangan Media Pembelajaran Interaktif Berbasis Teknologi Dalam

Pembelajaran Untuk Meningkatkan Hasil Belajar Siswa Sekolah Dasar." *Jurnal Pendidikan Tambusai* 5(2): 3019–3026.

Rozali, D., and Z. H. Ramadan. 2021. "Learning Heat and Its Transfer With Power Point Learning Media for Grade V Students of Elementary School." *International Journal of Elementary Education* 5(2): 98.

Salsabila, S. P., and M. B. A. Syaban. 2022. "Pengembangan E Modul Interaktif Materi Penampakan Alam Indonesia Di Sekolah Dasar." *Jurnal Basicedu* 6(5): 7896–7905.

Salsabila, Salsabila. 2024. "Konsep Dasar Belajar Dan Pembelajaran Dalam Pendidikan." 4(2).

Sargeant, Jan M., and Annette M. O'Connor. 2020. "Scoping Reviews, Systematic Reviews, and Meta Analysis: Applications in Veterinary Medicine." Frontiers in Veterinary Science 7: 11.

Sari, R. 2021. "Dampak Pembelajaran Tematik Terpadu Terhadap Sikap Sosial Siswa." *Jurnal Pendidikan Karakter* 13(2): 174–188.

Simorangkir, R., R. Sinaga, R. Limbong, and Z. Nazwa. 2024. "Analisis Penggunaan Media Digital Interaktif Untuk Meningkatkan Hasil Belajar Siswa Dalam Pembelajaran Matematika Di Sekolah Dasar." *Trapsila: Jurnal Pendidikan Dasar* 5(2): 10.

Suryana, Ermis, Marni Prasyur Aprina, and Kasinyo Harto. 2022. "Teori Konstruktivistik Dan Implikasinya Dalam Pembelajaran." 5: 2070–80.

Wati, I. S., and A. Arwin. 2020. "Peningkatan Proses Pembelajaran Tematik Terpadu Menggunakan Model Discovery Learning Di Kelas IV SD." *e Journal Pembelajaran Inovasi, Jurnal Ilmiah Pendidikan Dasar* 8(4): 118–131.

Widiastari, N. G. A. P., and R. D. Puspita. 2024. "Penggunaan Media Pembelajaran Digital Dalam Mengembangkan Motivasi Belajar Siswa Kelas IV SD Inpres 2 Nambaru." *Elementary: Jurnal Inovasi Pendidikan Dasar* 4(4): 215–222.

Widiastika, M. A., N. Hendracipta, and A. Syachruroji. 2020. "Pengembangan Media Pembelajaran Mobile Learning Berbasis Android Pada Konsep Sistem Peredaran Darah Di Sekolah Dasar." *Jurnal Basicedu* 5(1): 47–64.

Widodo, W., and Z. Arifin. 2023. "Implementasi Pembelajaran Tematik Terpadu Dengan Pendekatan STEAM Di Sekolah Dasar." *Jurnal STEAM Pendidikan* 5(2): 133–145.

Yulianti, N. 2023. "Pengaruh Pembelajaran Tematik Terpadu Terhadap Kemampuan Literasi Siswa Sekolah Dasar." *Jurnal Literasi Pendidikan* 6(3): 217–230.

Yustina, A., and B. H. C. Khosiyono. 2023. "Pengaruh Media Pembelajaran Quizizz Terhadap Motivasi Belajar Siswa Kelas VI SD." *Jurnal Pendidikan Dasar Flobamorata* 4(2): 593–598.