Literature Review: Analysis of the Use of Concrete Media in Mathematics Learning in Elementary Schools Between 2019-2024

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Abstract: This study aims to analyze the use of concrete learning media in mathematics learning at the elementary school level based on selected journal publications through a bibliometric approach using Scopus and Google Scholar databases published between 2019 and 2024. A total of 1,033 articles were initially identified during the search process, which were then filtered using inclusion and exclusion criteria, resulting in 54 relevant articles consisting of 53 from Google Scholar and 1 from Scopus. This research employed a literature review method with bibliometric analysis stages, including the identification of research trends, publication frequency, dominant keywords, and thematic developments related to concrete learning media in mathematics instruction. The findings indicate that the use of concrete media not only enhances students' conceptual understanding of mathematics, but also contributes to increased learning motivation, critical thinking, creativity, and problem-solving skills. Moreover, concrete media are considered effective in creating a more interactive and meaningful learning environment for elementary school students. The results of this study are expected to serve as a reference for researchers and education practitioners interested in examining research trends concerning the use of concrete learning media in mathematics education and to provide direction for future research.

Abstrak: Penelitian ini bertujuan untuk menganalisis penggunaan media pembelajaran konkret dalam pembelajaran matematika di sekolah dasar pada jurnal-jurnal terpilih melalui pendekatan bibliometrik yang bersumber dari basis data Scopus dan Google Scholar yang diterbitkan dalam rentang tahun 2019 hingga 2024. Sebanyak 1.033 artikel berhasil diidentifikasi pada tahap awal penelusuran, kemudian diseleksi berdasarkan kriteria inklusi dan eksklusi sehingga diperoleh 54 artikel yang relevan, terdiri atas 53 artikel dari Google Scholar dan 1 artikel dari Scopus. Penelitian ini menggunakan metode studi kepustakaan dengan tahapan analisis bibliometrik, meliputi identifikasi tren penelitian, frekuensi publikasi, kata kunci dominan, serta kecenderungan topik terkait media konkret dalam pembelajaran matematika. Hasil penelitian menunjukkan bahwa penggunaan media konkret tidak hanya meningkatkan pemahaman konsep matematis siswa, tetapi juga berkontribusi terhadap peningkatan motivasi belajar, kemampuan berpikir kritis, kreativitas, dan keterampilan pemecahan masalah. Selain itu, media konkret dinilai mampu menciptakan lingkungan belajar yang lebih interaktif dan bermakna, terutama bagi siswa sekolah dasar. Temuan penelitian ini diharapkan dapat menjadi rujukan bagi peneliti dan praktisi pendidikan yang tertarik mengkaji tren penelitian media konkret dalam pembelajaran matematika, serta memberikan arahan untuk penelitian selanjutnya.

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A. Introduction

Mathematics plays an essential role in various branches of science and contributes to the development of human intellectual abilities (Jannah et al., 2023). At the elementary school level, mathematics occupies a strategic position in achieving educational goals because it helps students build a strong conceptual foundation for higher-level learning (Hendriani, 2021). However, in practice, mathematics is often perceived as a complex and intimidating subject, which makes many students less motivated and disengaged in the learning process (Adistya et al., 2023).

One of the main factors causing this problem is the limited use of media in mathematics learning (Jannah et al., 2023). Teachers often rely on textbooks and worksheets, which makes the learning process less engaging and less meaningful (Anggraeni, 2023). Even when media are used, they are often makeshift and straightforward, so they fail to attract students' attention and support their conceptual understanding (Miranti et al., 2024). This condition hampers the effectiveness of mathematics learning in helping students master basic concepts (Fitri, 2023). Ultimately, the lack of optimal use of learning media negatively impacts student learning outcomes (Wijayanti, 2021). To overcome this, the use of appropriate learning media is essential because media are one of the core components of the instructional system (Azis & Amrillah, 2024). Learning objectives, materials, methods, media, and evaluation must work together to achieve learning goals (Juarminson, 2024). Therefore, teachers need to maximize the use of media in every stage of mathematics learning (Andriani et al., 2024).

Concrete learning media are considered effective in addressing these challenges because they can connect abstract mathematical concepts to real experiences (Susanto et al., 2022). Concrete media consist of real objects that help students actively engage in the learning process (Argaruri et al., 2023). Their use can encourage active participation and a deeper understanding of mathematical concepts (Anggraini & Mahmudah, 2023). In addition, concrete objects are easily accessible in the students' environment, which makes them practical for classroom use (Mahmudi, 2023). The practicality of concrete media is consistent with the characteristics of good learning media (Saputro et al., 2021). These objects also stimulate students' senses and support the development of their abilities (Jahyus, 2023). By providing authentic and direct experiences, concrete media enable students to learn independently and improve their learning outcomes (Purbarani, 2024).

Previous studies on concrete media in mathematics learning have mainly focused on classroom implementation or specific cases (Handayani et al., 2024). Some Research has highlighted the role of interactive media as an alternative solution to improve mathematics instruction (Khoiriyah et al., 2022). However, there is still a lack of comprehensive mapping of Research trends regarding the use of concrete media in elementary school mathematics. This indicates a Research gap that needs to be addressed.

In the Indonesian context, the integration of concrete media in mathematics learning is also relevant to the implementation of the *Merdeka Curriculum*, which emphasizes active, contextual, and student-centered learning (Kemdikbud, 2022). The curriculum encourages

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teachers to provide meaningful experiences and real-world connections in the classroom, which aligns with the characteristics of concrete media in supporting student engagement and conceptual understanding. This makes the study of concrete media trends not only academically important but also practically relevant to current educational policies.

Bibliometric analysis offers a suitable approach because it can map publication patterns, authorship, citations, and knowledge structures through visualization techniques (Bukar et al., 2023). It is also commonly applied to explore the dynamics of knowledge development in specific fields (Lismaya et al., 2025). Bibliometric studies allow researchers to identify dominant trends and understand how a topic evolves in the scientific community (Budianto & Dewi, 2023). In addition, bibliometric methods help evaluate the number and quality of scholarly publications in a particular area (Abdullah, 2021).

Therefore, this study aims to analyze the Research trend on the use of concrete media in mathematics learning in elementary schools during the 2019–2024 period. Specifically, this study addresses three questions: (1) What are the trends in the use of concrete media in mathematics learning in elementary schools? (2) What types of concrete media are most frequently used by teachers to teach mathematical concepts? and (3) How can Research trends be visualized using VOSviewer software? The findings are expected to enrich teachers' insights in developing more contextual and effective strategies for mathematics instruction in elementary schools.

B. Method

The methodological framework adopted for this research is bibliometric in nature, focusing on investigating usage patterns of concrete media in elementary mathematics pedagogy during the 2019-2024 period, examining the predominant concrete media formats utilized by elementary mathematics teachers, and creating visualization models of research developments via VOSviewer software. Data acquisition was conducted by retrieving academic articles from authoritative sources indexed within Google Scholar and Scopus, since both databases comprise journals acknowledged as reliable by scholarly communities for maintaining strict methodological protocols and systematic temporal categorization.

This data was obtained by searching for articles using the Publish or Perish (POP) application. The articles were searched using the keywords "concrete media", 'math', and "elementary school" based on the time span from 2019 to 2024. The stages of this Research are presented in Figure 1.

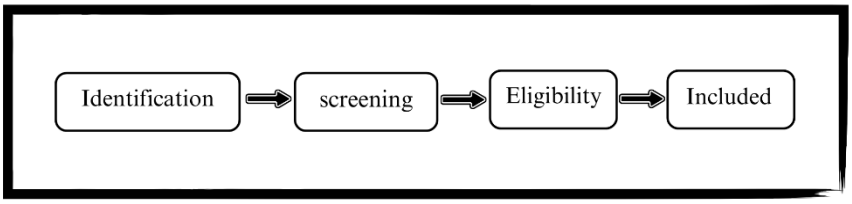

Figure 1. Steps In Bibliometric Analysis (Lismaya et al., 2025)

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Initial search result data has been obtained for as many as 1,033 articles. A total of 54 article documents have met the search criteria from a total of 1,033 article documents published in the range of 2019 to 2024. The collected data is then stored in .ris format for further analysis. The article selection process in this study uses systematic stages that refer to the flow of identification, screening, eligibility, and inclusion. The identification stage searched for articles using the keywords "concrete media", 'mathematics', and "elementary school" through the Google Scholar and Scopus databases. The obtained articles were then reviewed by reading the title to evaluate the suitability of the article with the Research theme. In the screening stage, articles were eliminated in the form of books, inaccessible articles, articles that did not explicitly discuss concrete media in mathematics learning, and articles that were not relevant to the primary school context. At the eligibility stage, carefully read the abstracts of the articles and ensure compliance with the predetermined inclusion criteria, namely the relevance of the theme, the coverage of the basic education level, and concrete media in learning mathematics. Furthermore, the last stage included 54 articles that had met the selection criteria and were declared eligible for further analysis in this study. Then conduct a qualitative analysis to reveal the pattern of using concrete media and its impact on learning mathematics in elementary schools.

The selected articles were then compiled into an Excel file containing data such as the author's name (Author), article title (Title), year of publication (Year), and number of citations per year (Cites). Furthermore, analyzing the data that has been collected with the help of Microsoft Excel and the VOSviewer application, to map Research patterns, publication distribution, and visualization of keyword networks regarding concrete media. The focus of bibliometric analysis in this study is to analyze the number of publications per year, the number of article citations per year, the distribution of Research methods used in the article, the type of concrete media used, and the results of the Research studied.

The data that has been collected is then further analyzed using a quantitative descriptive approach, the results of which are presented in the form of tables, bar charts, and visualization through VOSviewer. This analysis was carried out to examine the patterns of keyword occurrence, the relationship between one topic and another, and the Research trends that developed in the study of concrete media for mathematics learning in elementary schools. The visualization plays a role in describing the relationship between the use of concrete media, the mathematics learning materials delivered, and the learning objectives to be achieved. Overall, the Research steps in this study were guided by references from various previous studies, which are presented in Figure 2.

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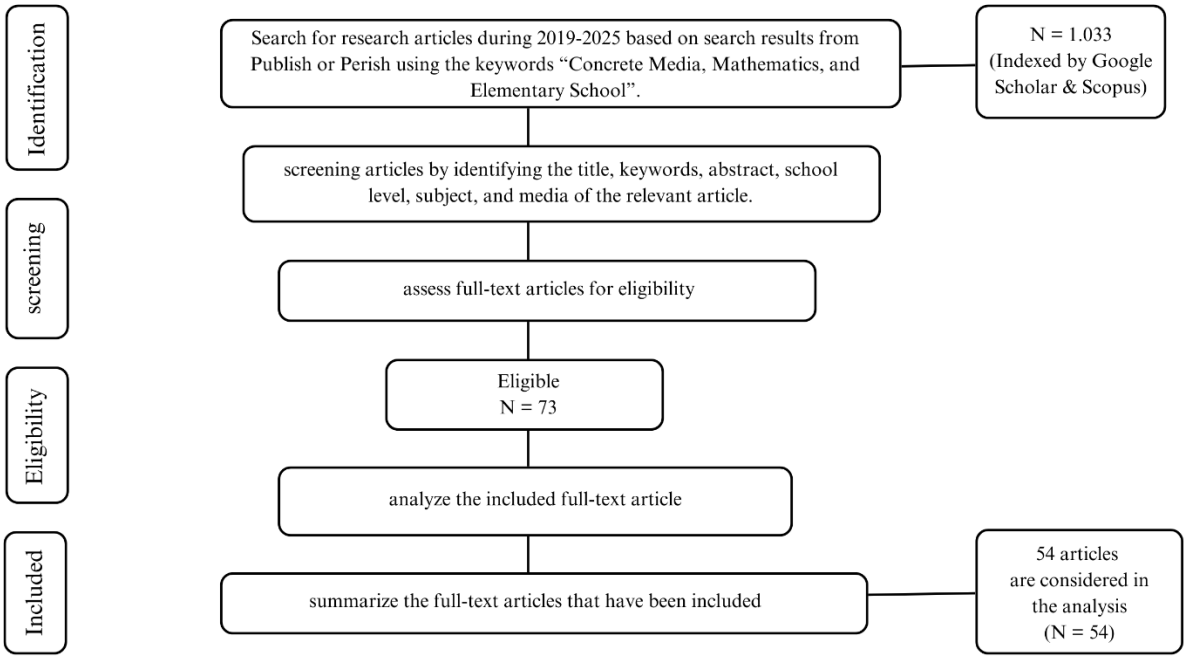

Figure 2. Research Procedure

The 6-year timeframe for reviewing articles has several strategic considerations that relate to the decision-making process (Aulia et al., 2025). This long time span provides an opportunity to examine the trends, quality, and influence of publications in greater depth (Chen et al., 2025). In addition, the 6-year period provides an opportunity to accumulate citations and scientific influence, so that the evaluation process can reflect the contribution of scientific work in a meaningful and more stable manner (Chen et al., 2025). This consideration is in line with bibliometric principles as well as modern academic evaluation that prioritizes the importance of balancing the quantity and quality aspects of the relevant time span (Lismaya et al., 2025).

C. Result

1. Data Analysis

This Research began by identifying 1,033 articles through the Publish or Perish database. From this number, an initial screening was carried out, leaving 73 articles that were relevant to the topic of using concrete media. After going through a further identification process, 54 articles were selected that were considered worthy of review because they specifically examined the effect of concrete media on mathematics learning in elementary schools. The results of the analysis of the 54 articles can be further presented in Figure 3 below, which illustrates the distribution of publications:

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Figure 3. Results of International Journal and National Journal Analysis 2020 - 2024

The bar chart illustrates the number of international and national articles used in this literature review from 2019 to 2024. National articles are colored green, and international articles are colored blue.

It can be seen that blue international articles appeared for the first time in 2023, with one article. Meanwhile, green national articles started to appear in 2019 and continued to be published until 2024. The peaks of national article publication occurred in 2022 and 2023, indicating a significant increase in local Research in that period. However, it is worth noting that there was a decline in the number of national articles in 2019 and 2024. This pattern indicates a dynamic in the focus of Research at the local level related to the use of concrete media in mathematics learning.

2. Critical Appraisal

Each article selected has undergone a critical review to ensure its quality and relevance. The evaluation process carefully assesses several aspects of methodology, including: clarity of Research objectives, alignment of Research design with Research questions, sampling methods, validity and reliability of instruments used, data analysis techniques, and consistency between findings and conclusions.

This assessment is essential to ensure that each article referenced in this literature review meets appropriate scholarly standards. Articles that made it through the selection had well-defined objectives, were supported by a proper Research design, and presented results that convincingly supported the conclusions drawn.

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3. Literature Review Results

Based on a review of 54 selected articles published between 2019 and 2024, it was found that the use of concrete media makes a significant positive contribution to mathematics learning in primary schools. Several articles consistently showed that concrete media can improve students' understanding of math concepts, their engagement, and their learning motivation. In addition, the use of these media also supports more interactive and meaningful learning, helping students bridge abstract concepts into a more tangible form.

In terms of Research distribution, one international article on concrete media in primary school mathematics was found in 2023. Meanwhile, 54 national articles appeared consistently from 2019 to 2024, with peaks in 2022 and 2023. However, it should be noted that national articles experienced a decline in the number of publications in 2019 and 2024. This reflects the dynamic attention of local researchers to the implementation of concrete media in mathematics learning in Indonesia.

4. Literature Review Data Analysis Matrix

This data analysis matrix presents a summary of findings from each selected article, focusing on four core elements, viz, article title, author identity, journal name, and Research results found. The matrix is designed to display consistent patterns of findings from across the literature reviewed regarding the analysis of the use of concrete media in primary school mathematics learning. For a more in-depth understanding of how concrete media demonstrated its effectiveness in this context, the details of the analysis of the 54 articles can be found in Table 1 below:

Table 1. Results of Article Analysis

Authors	Title	Research Results	Journal
1. Muhammad Zaenal Fais **2.** Ikha Listyarini **3.** Ahmad Nashir Tsalatsa	*Pengembangan Media Papin dan Koja (Papan Pintar dan Kotak Ajaib) Sebagai Media Pembelajaran Matematika*	Papin and Koja media are suitable for use in mathematics learning because they achieved learning outcomes of 61.5 in the first meeting and 79.2 in the second meeting.	Jurnal Penelitian dan Pengembangan Pendidikan.
1. Asri Pajarwati, **2.** Oyon Haki Pranata, **3.** Nana Ganda	*Penggunaan Media Kartu Pecahan untuk Meningkatkan Pemahaman Siswa tentang Membandingkan Pecahan*	There was a significant increase in students' understanding after using fraction cards in mathematics learning.	Pedadidaktika: Jurnal Ilmiah Pendidikan Guru Sekolah Dasar
1. Muhammad Prakas Dara Asshofi, **2.** Aries Tika Damayani, **3.** Rofian	*Peningkatan Hasil Belajar Matematika Materi Faktor Persekutuan Besar dan Kelipatan Persekutuan*	The application of the NHT model assisted by star puzzle boards can improve students' learning outcomes in	Jurnal Ilmiah Sekolah Dasar

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Authors	Title	Research Results	Journal
	Kecil melalui Model NHT Berbantu Media Papan Puzzle Berbintang	mathematics on the topics of FPB and KPK.	
1. Nurhaeni, 2. Oyon Haki Pranata, 3. Resa Respati	*Pengaruh Media Kartu Bilangan terhadap Pemahaman Siswa Mengenai Operasi Pengurangan Bilangan Bulat*	There is a significant effect of the use of number cards on students' understanding of integer subtraction operations.	Pedadidaktika: Jurnal Ilmiah Pendidikan Guru Sekolah Dasar
1. Syarifah Nadiyah, 2. Finna Yunilia Wijaya, 3. Arif Rahman Hakim	*Desain Komik Strip Matematika pada Materi Statistika untuk Kelas VI Tingkat Sekolah Dasar*	Learning mathematics using mathematical comic strips stimulates students' interest in learning.	Jurnal Kajian Pendidikan Matematika
1. Latri, 2. Ahmad Syawaluddin, 3. Amrah	*Pengaruh Penggunaan Media Blok Pecahan Terhadap Minat Belajar Pada Mata Pelajaran Matematika Siswa Kelas III SD Kompleks Lariang Bangi Kecamatan Makassar Kota Makassar*	The learning process using Fraction Blocks in the experimental class was effective.	JIKAP PGSD: Jurnal Ilmiah Ilmu Kependidikan
1. Fita Ayu Apriyasha, 2. Taufik Hidayat, dan 3. Nareswari Anita	*Pengembangan Media Kit Pembelajaran untuk Siswa Kelas III Sekolah Dasar terhadap Materi Pecahan Sederhana*	The project to create mathematics learning media based on media kits for elementary schools is very feasible as a learning tool.	JKPM (Jurnal Kajian Pendidikan Matematika)
1. Dwi Motik Resmaniti, 2. Karlimah	*Rancangan Media Pop Up Book tentang Konsep Operasi Hitung Penjumlahan Bilangan Cacah*	This pop-up book is effective in increasing students' interest and understanding of the concept of addition of whole numbers.	Indonesian Journal of Primary Education
Nanik Mas'ulah	*Pengaruh Penggunaan Media Kantong Bilangan Terhadap Hasil Belajar Matematika Materi Pembulatan Dan Penaksiran Pada Siswa Kelas Iv Sdn Kedurus I Surabaya*	The use of number bags can improve fourth-grade students' learning outcomes in mathematics in the areas of rounding and estimation.	JPGSD UNESA
1. Nike Kristi Puspitasari, 2. Asri Kusumaning Ratri	*Pengembangan Media Papan Kapulog (Kesetaraan Nilai Pecahan Uang Logam) Pada Mata Pelajaran Matematika Kelas Iii Di Sdn 1 Kepuh Kecamatan*	The use of this media can increase students' interest and understanding of the material being taught.	Jurnal STKIP PGRI Tulungagung

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Authors	Title	Research Results	Journal
	Boyolangu Kabupaten Tulungagung		
1. Ikta Fitrianti, 2. Diana Endah Handayani, 3. Suyitno YP	*Keefektifan Media Magic Box Terhadap Hasil Belajar Matematika Materi Jaring-Jaring Bangun Ruang Sederhana*	The magic box media, assisted by the numbered heads together model, is efficacious in improving learning outcomes in mathematics for fifth graders studying simple spatial figures.	Mimbar PGSD Undiksha
1. Dewi Fatimah, 2. Murtono, 3. Su'ad	*Pengembangan Media Katela untuk Operasi Hitung Perkalian Pada Siswa 2 Sekolah Dasar*	The use of Katela media can increase students' interest and understanding of the material being taught.	Jurnal Penelitian dan Pengembangan Pendidikan
1. Yasa Umami Setiawan, 2. Indhira Asih, 3. Vivi Yandari, 4. Aan Subhan Pamungkas	*Pengembangan Kartu Domino Pecahan Sebagai Media Pembelajaran Matematika Di Kelas Iv Sekolah Dasar*	Domino card learning media can provide fourth-grade students with an understanding of fractions.	Primary: Jurnal Keilmuan dan Kependidikan Dasar
Ayu Fitri	*Pengaruh Penggunaan Media Sponges Dakon Pada Materi FPB dan KPK Terhadap Hasil Belajar Siswa Kelas IV SD*	Students' mathematics learning outcomes were positively influenced by the use of the 'dakon' sponge medium.	Scholaria: Jurnal Pendidikan dan Kebudayaan
1. Syailin Nichla Choirin Attalina, 2. Saidatul Irfana	*Peningkatan Kemampuan Pemahaman Konsep Dasar Perkalian Dengan Menerapkan Model Pembelajaran Pbl (Problem Based Learning) Berbantuan Media Pembelajaran Tolkama (Botol Perkalian Matematika) Pada Peserta Didik Kelas II Sekolah Dasar*	The use of media-assisted learning models is efficacious in improving understanding of basic mathematical concepts.	Jurnal Pendidikan Dasar : Jurnal Tunas Nusantara
1. Meitha Furi Dewi, 2. Meiliana Nurfitriani, 3. Yopa Taufik Saleh	*Pengembangan Media Pembelajaran Tas Pintar Pada Konsep Dasar Perkalian Di SDN 1 Papayan*	Students can understand the basic concept of multiplication as repeated addition.	Jurnal Pendidikan Dasar Nusantara
1. Retno Nuzilatus Shoimah, 2. Mustika Syafi'aturrosyidah	*Penggunaan media pembelajaran konkrit untuk meningkatkan aktifitas belajar dan*	There has been a significant improvement in the understanding of	Jurnal Universitas Islam Darul 'Ulum Lamongan

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Authors	Title	Research Results	Journal
	pemahaman konsep pecahan mata pelajaran Matematika siswa kelas III MI Ma'arif	fractions and fraction operations.	
1. Riskika Febriyandani, **2.** Kowiyah	*Pengembangan media komik dalam pembelajaran matematika materi pecahan kelas IV sekolah dasar*	Students quickly understand the learning material, rather than just listening to the teacher's lecture, summarizing the material, and doing exercises without concrete examples.	Jurnal Pedagogi dan Pembelajaran
1. Indra Murti Wulandari, **2.** Indri Anugraheni	*Pengembangan Media Komik Matematika Berbasis Visual Pada Materi Kerucut dan Tabung di Sekolah Dasar*	This comic book will have a positive impact on the learning process and can increase innovation among teachers.	Jurnal Ilmiah Wahana Pendidikan
1. Taufikurrahman, **2.** Nurhaswinda	*Penggunaan Media Pembelajaran Papan Pecahan untuk Meningkatkan Pemahaman Konsep Matematika Pada Siswa Sekolah Dasar*	an increase in students' understanding of concepts in mathematics	Jurnal Pendidikan dan Konseling
Ani Kholifatul Khoir	*Penggunaan Media Beruang Antik Berbasis STEAM pada Materi Bangun Ruang Siswa Sekolah Dasar*	improving critical thinking skills, collaboration skills, communication skills, and the ability to analyze all forms of information obtained	Edudikara: Jurnal Pendidikan dan Pembelajaran
1. Tri Febriana Dilla, **2.** Sukmawarti	*Pengembangan Media Multiply Cards Pada Pembelajaran Operasi Perkalian Bilangan Bulat Di Sekolah Dasar*	There is an influence of using multiple cards as learning media on student learning outcomes.	Center of Knowledge : Jurnal Pendidikan Dan Pengabdian Masyarakat
Tiansi Y. Ahmad	*Pengaruh Media Congklak Dan Motivasi Terhadap Keterampilan Menghitung Perkalian Pada Siswa Kelas III di SDN 1 Limboto Kab. Gorontalo*	The use of congklak media significantly improves students' multiplication skills.	Pascasarjana Universitas Negeri Gorontalo Prosiding Seminar Nasional Pendidikan Dasar
1. Adira Valentina, **2.** Murfiah Dewi Wulandari	*Media Pembelajaran Mabeta Untuk Menguatkan Kemampuan Berhitung*	The use of Mathematics Learning Magnets (MABETA) plays an essential role in strengthening the	Jurnal Cakrawala Pendas

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Authors	Title	Research Results	Journal
	Peserta Didik Sekolah Dasar	arithmetic skills of elementary school students.	
1. Emy Eko Wati, 2. Kristi Liani Purwanti	*Peningkatan Kemampuan Pemahaman Konsep Perkalian Melalui Penggunaan Media Tutup Botol pada Siswa Kelas 2 Madrasah Ibtidaiyah*	The use of bottle caps can improve second graders' understanding of the concept of multiplying two numbers.	Journal of Integrated Elementary Education
1. Ardhya Pramesti, 2. Farra Nabilla 3. Mulia Putri, 4. Arlinda Bayu Prastiwi, 5. Maulana Zamzuri.	*Penerapan Problem Baseed Learning dengan Media Papan Pecahan dalam Meningkatkan Hasil Pembelajaran Matematika Kelas IV SD*	Fraction boards can help students learn mathematics, particularly fractions, in fourth grade.	ALGAZALI: International Journal Of Educational Research
1. Mutasyilla Nur Azizah, 2. Linda Febrianingrum, 3. Wulan Sutriyani	*Peran Media Papan Perkalian Terhadap Hasil Belajar Matematika Materi Perkalian Kelas V SD*	Through the multiplication board, students can be more stimulated to discover multiplication concepts.	Jurnal Pendidikan Matematika Malikussaleh
1. Mega Yulia Rohmah, 2. Ni Luh Sakinah Nuraini, 3. Yulia Linguistika	*Pengembangan Media Pembelajaran Pancakar (Papan Pecahan Dan Kartu Soal) Dengan Penguatan Karakter Rasa Ingin Tahu Siswa Kelas IV Sekolah Dasar*	Pancakar media is valid, practical, effective, and enjoyable to use in teaching fractions in fourth-grade elementary school.	Jurnal Ibriez : Jurnal Kependidikan Dasar Islam Berbasis Sains
1. Asmal, 2. M. Amir Masruhim, 3. Suryaningsi	*Pengembangan Media Pembelajaran Matematika Dengan Jam Sudut Pizza Di Kelas Iv Sdn 009 Samarinda Ulu*	Pizza corner clocks are suitable as a teaching aid for mathematics lessons in fourth-grade elementary school.	Jurnal Cakrawala Ilmiah
1. Zuha Prisma Salsabila, 2. Nafisatul Aliya, 3. Fadillah Mira S, 4. Nurleila Rizqi P, 5. Putri Indriyanti, 6. Achmad Syaab Arif A. W, 7. Uswatun Chasanah	*Penerapan Media Konkret Untuk Meningkatkan Hasil Belajar Tematik Integratif Peserta Didik Kelas 2 Minu Ngingas*	Integrative thematic learning based on concrete media shows differences in student learning outcomes.	Auladuna: Jurnal Pendidikan Dasar Islam
1. Ade aprilia, 2. Kurniyatul Faizah, 3. Sudarsri Lestari	*Pengaruh Penggunaan Media Papan Berpaku (Geoboard) Terhadap Hasil Belajar Siswa Kelas 3 Pada Mata Pelajaran Matematika Di Sd Negeri 1 Sumberbulu*	The use of pinboards can affect student learning outcomes.	Atta'lim: Jurnal Madrasah Ibtidaiyah

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Authors	Title	Research Results	Journal
1. Kunti Dian Ayu Afiani, **2.** Meirza Nanda Faradita	*Pemahaman Konsep Matematika Siswa Kelas III di Sekolah Dasar Surabaya Materi Pecahan Berbantu Media Folding Paper*	The use of folding paper in teaching fractions helps students to restate the concept of fractions.	Jurnal Gentala Pendidikan Dasar
1. Gusti Ayu Diah Ariesta Dewi, **2.** Ni Wayan Rati, **3.** Gusti Ayu Putu Sukma Trisna	*Media Kober (Kotak Berhitung) Berbasis Permainan Spin Wheel pada Muatan Matematika*	This spin wheel-based Kober (counting box) media is effective to use and can help students learn.	Jurnal Pedagogi dan Pembelajaran
1. Puji Sri Lestari, **2.** Ratnasari Diah Utami	*Pengembangan Media Pembelajaran Kobela Pada Muatan Matematika Kelas 3 Sekolah Dasar*	Kobela learning media is suitable for use in mathematics lessons for third-grade elementary school students.	Aksioma: Jurnal Program Studi Pendidikan Matematika
1. Aulia Nur Faizah, **2.** Cindi Arina Manasikana, **3.** Wulan Sutriyani	*Peran Media Pembelajaran Corong Berhitung Terhadap Pemahaman Konsep Pembagian Di Kelas Ii Sdn 1 Tahunan*	Funnel-shaped learning media can improve students' understanding of division concepts.	Cartesius: Jurnal Pendidikan Matematika
1. Nina Nursela, **2.** Ida Putri Rarasati, **3.** Dwi Kameluh Agustina	*Pengembangan Media Pembelajaran Pop Up Book Materi Bangun Ruang Untuk Siswa Kelas V Sekolah Dasar*	This medium is effective in helping to understand spatial concepts.	Jurnal Jispendiora : Jurnal Ilmu Sosial, Pendidikan Dan Humaniora
Tia Ayu Dita	*Pengembangan Media Busy Book Berbasis Pendekatan Saintifik Pada Materi Bangun Datar kelas III Sekolah Dasar*	This medium is effective in helping students understand the concept of flat shapes.	Jurnal Pendidikan dan Konseling
1. Izzatul Jannah, **2.** Agung Setyawan	*Meningkatkan Hasil Belajar Matematika Melalui Media Papan Puzzle Pecahan Pada Siswa Sekolah Dasar*	There was an increase in the learning outcomes of students who used fraction puzzle boards in their learning.	Judikdas: Jurnal Ilmu Pendidikan Dasar Indonesia
1. Maulia Anisa Sabilla, **2.** Ida Bagus Kade Gunayasa, **3.** Muhammad Tahir	*Pengaruh Media Kantong Bilangan Terhadap Hasil Belajar Matematika Materi Penjumlahan Pada Siswa Kelas Iii Sdn 1 Cakranegara Tahun Ajaran 2022*	There is an influence of the number of bags on mathematics learning outcomes in addition to third-grade students.	Pendas : Jurnal Ilmiah Pendidikan Dasar
Defa	*Pengembangan Media Ular Tangga Bilangan Bulat Pada Pelajaran*	The Snake and Ladder learning media for integers is efficacious	Jurnal Didaktika Pendidikan Dasar

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Authors	Title	Research Results	Journal
	Matematika Di Sekolah Dasar	in improving learning outcomes and understanding of integer calculation concepts.	
1. Midya Yuli Amreta, 2. Firda Zakiyatur Rofi'ah, 3. Alfina Luk Luul Markhamah	*Pengembangan Media Papan Hitung Pada Mata Pelajaran Matematika Sd*	Counting boards are excellent and practical teaching aids.	Jurnal Ilmiah Pendidikan Citra Bakti
1. Syifaun Nafisah, 2. Yayang Furi Furnamasari	*Penerapan Media Pembelajaran Papan Pintar Dalam Pembelajaran Matematika Kelas Dua Uptd Sdn 1 Juntinyuat*	Smart boards are very suitable for use as a learning medium that can assist in the learning process.	Jurnal Inspirasi Pendidikan (ALFIHRIS)
1. Yanuardhana Argaruri, 2. Joko Sulianto, 3. Ikha Listyarini, 4. Dewi Natalia Kristanti 5. Santi Puspita Rini	*Penggunaan Media Pembelajaran Konkret Dalam Meningkatkan Minat Belajar Matematika Peserta Didik SDN Kalicari 01 Semarang*	The use of concrete learning media can make learning more interesting, less monotonous, and less tedious.	Innovative: Journal Of Social Science Research
1. Farina Trias Alwasi, 2. Shalaisa Saputri, 3. Widianti Nurohmah, 4. Komariah	*Penggunaan media pembelajaran puzzle bangun datar untuk mengetahui hasil belajar siswa kelas 1 pada materi menyusun dan mengurai bangun datar*	The use of puzzle media makes it easier for students to understand the material.	Tadzkirah: Jurnal Pendidikan Dasar
1. Agus Lina Silvia, 2. Rosiana Mufliva, 3. Asyifa Nurjannah, 4. Ava Tiara Cahyaningsih	*Meningkatkan Pemahaman Konsep Perkalian Matematika Pada Siswa Kelas III Sekolah Dasar Dengan Menggunakan LKPD Berbantuan Media Kantong Perkalian Matematika*	Mathematical multiplication pocket media can be used to assist teachers and students in learning mathematical multiplication concepts.	Dwija Cendekia: Jurnal Riset Pedagogik
1. Anis Safitri, 2. Muhammad Makki, 3. Vivi Rachmatul Hidayati, 4. Asri Fauzi	*Pengembangan Media Stik Es Krim Untuk Kemampuan Berhitung Penjumlahan Dan Pengurangan Kelas Ii Sdn 2 Lembuak, Kabupaten Lombok Barat*	Ice cream sticks are a very valid, practical, and effective medium for teaching addition and subtraction skills.	Pendas : Jurnal Ilmiah Pendidikan Dasar
1. Alda Budi Andzani, 2. Ery Rahmawati,	*Pengembangan Media Pamitung (Papan Miniatur Hitung) Pada Pembelajaran*	The development of PAMITUNG media in mathematics learning can improve the	Pendas : Jurnal Ilmiah Pendidikan Dasar

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Authors	Title	Research Results	Journal
3. Tri Achmad Budi Susilo	*Matematika Terhadap Hasil Belajar Siswa Kelas IV SD*	learning outcomes of fourth-grade elementary school students.	
1. Nur Rezky Ramadhan, **2.** Restu Januarty Hamid	*Media Pembelajaran Papan Perkalian Untuk Meningkatkan Hasil Belajar Siswa Kelas III SD Inpres Bontobila*	This media is used to encourage students to explore the concept of multiplication.	JHP2M: Jurnal Hasil-Hasil Pengabdian dan Pemberdayaan Masyarakat
Hermina Manek	*Peningkatan Hasil Belajar Matematika Siswa Dengan Menggunakan Media Blok Dienes Pada Materi Operasi Penjumlahan Bilangan Cacah*	The use of Dienes blocks can improve learning outcomes in mathematics, specifically in the subject of addition of whole numbers.	Fraktal: Jurnal Matematika dan Pendidikan Matematika
1. Ismi Anggraini, **2.** Vivi Rachmatul Hidayati, **3.** Siti Istiningsih	*Pengembangan Media GUTOP (Game Ular Tangga Operasi Hitung Pecahan) Materi Pecahan pada Mata Pelajaran Matematika untuk Kelas V SD*	There was a significant increase in students' understanding of multiplication concepts and motivation to learn after using this media.	Journal of Classroom Action Research
1. Samrotul Fikriyah, **2.** Arief Rahman Hakim, **3.** Dwi Agus Setiawan, **4.** Dina Ari Kusumawati, **5.** Tri Lestari	*Peningkatan Hasil Belajar Matematika Materi FPB dan KPK Menggunakan Media "DASI" (Dakon Multifungsi) pada Siswa Kelas V SDN Gadang 3 Kota Malang*	Mathematics learning using the "DASI" (Multifunctional Dakon) media can improve student learning outcomes in the FPB and KPK materials.	Jurnal Pembelajaran, Bimbingan, dan Pengelolaan Pendidikan
1. Lisaana Shidqi, **2.** Trisniawati, **3.** Nelly Rhosyida	*The development of Kobatar learning media for learning mathematics in elementary school*	Kobatar learning media shows its potential as a flexible and effective tool in mathematics learning.	SyncSci Publishing
1. Aderisca Kusumaningrum, **2.** Ervina Eka Subekti, **3.** Rina Dwi Setyawati, **4.** Lisa Wati	*Peningkatan Kemampuan Numerasi Menggunakan Model Problem Based Learning Berbantu Media Puzzle Penjumlahan Kelas I Sdn Tlogosari Kulon 01 Semarang*	The application of addition puzzle media resulted in an increase in students' pretest and posttest scores in numeracy skills in first grade.	Jurnal Penelitian Multidisiplin Ilmu
1. Titi Pujiarti, **2.** Asmedy, **3.** Fifi Fitrianasari	*Efektivitas Penggunaan Media Benda Kongkret untuk Meningkatkan Hasil Belajar Matematika Siswa Sekolah Dasar*	The use of concrete media has not had a significant impact on student learning outcomes due to students' lack of	Jurnal Evaluasi dan Kajian Strategis Pendidikan Dasar

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Authors	Title	Research Results	Journal
		familiarity with using such media.	

D. Discussion

The synthesized results of the 54 studies listed in the data analysis matrix show that the use of concrete media in mathematics learning positively impacts various aspects of learning in primary schools. These findings directly answer the problem formulation and Research questions related to the effectiveness of concrete media in improving mathematics learning outcomes. Not only that, the use of concrete press also has a significant influence on students' motivation, concept understanding, problem-solving ability, and critical thinking skills.

The findings were obtained through a variety of methodologically sound approaches, such as classroom action Research, case studies, quasi-experiments, and media development. The quality of the data was also strengthened by the involvement of various parties, such as teachers, students, and education experts, in the media evaluation process. In general, they gave a very positive assessment of the feasibility, practicality, and effectiveness aspects of the concrete media. Various studies have shown a significant increase in student understanding after the use of concrete press, compared to learning without concrete media.

Interpretation of these findings suggests that concrete media can create a more concrete, interactive, and multisensory learning experience. It allows the visualization of abstract mathematical concepts to become more real, increases the attractiveness of learning, and encourages students' active involvement in the learning process. However, some studies also note challenges that need to be anticipated, such as the limited availability of media in some schools, teachers' readiness to integrate media effectively, and the potential for classroom disruption if not appropriately managed. The use of concrete media is also closely aligned with active learning approaches and Piaget's cognitive development theory, which emphasizes the importance of direct interaction with physical objects to build concept understanding. Therefore, concrete media can be seen as a bridge that connects abstract mathematical theories with students' real-life experiences, strengthening the theoretical foundations of the learning process.

This Research strongly supports findings from previous studies that consistently report the effectiveness of concrete media in mathematics learning. For example, a survey by Hermina Manek (2023) found that direct interaction with props such as Dienes blocks significantly improved students' understanding of place value and fraction concepts. The consistency of these findings confirms that concrete media is not just a tool, but an essential pedagogical strategy. In addition, this study also enriches the existing literature by providing a trend analysis of the use of concrete media over the period 2019-2025, highlighting the dynamics of national and international publications. This shows that

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although the benefits of concrete media have been widely proven, Research at the local level is still evolving to adapt and explore its use in the Indonesian educational context.

Based on the findings and interpretations above, a proposal can be made to enrich visual-interactive learning theory by placing concrete media as a transformative medium that integrates visual, kinesthetic, and authentic experience elements in one learning process. In addition, a new hypothesis emerges that the success of concrete media-based learning is strongly influenced by three main components, namely media accessibility, pedagogical alignment with the curriculum, and teacher and student readiness in utilizing it. This indicates the need for a holistic and contextualized mathematics learning design model that considers material integration, appropriate pedagogical approaches, and user readiness in the elementary school education environment.

E. Implication

The results of this study make a significant contribution to strengthening the field of education, especially in the realm of mathematics learning in elementary schools. The use of concrete media is proven to not only support a significant increase in understanding of mathematical concepts, but also strengthen the constructivist learning approach that emphasizes the active role of students in building knowledge. This finding confirms that concrete media is a learning strategy that is relevant and adaptive to the characteristics of cognitive development of primary school students. Thus, this study strengthens the position of concrete media as one of the essential pillars in meaningful mathematics learning.

Practically, the implications of this review can be utilized by teachers in designing more interactive and contextualized learning through the use of concrete media that are appropriate to the material and students' needs. Theoretically, the results of this study support theories of experiential learning and concrete media in basic education. It can also serve as a basis for education policy makers and curriculum developers to provide more intensive training for teachers in designing and implementing concrete media as part of innovative learning strategies.

F. Limitation and Suggestion for Further Research

This study has some limitations that need to be noted. First, this study only focused on articles published between 2019 and 2024, so there may be relevant Research outside of this timeframe that was not included in the analysis. Second, most of the articles reviewed were from national sources, which may limit the generalizability of the results to an international context. Third, this literature review method relies on secondary information already available in publications, which limits the quality and completeness of the data presented by each article author.

To overcome these limitations, it is suggested that future Research conduct a systematic review with a meta-analysis approach to quantitatively calculate the effectiveness of using concrete media. In addition, it would be better if future Research

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involves articles from a broader range of international sources so that findings can be compared across different educational contexts. Field Research can also be conducted to directly test the implementation of concrete media in various classroom conditions to provide more in-depth and contextualized primary data.

G. Conclusion

This article uses a literature review approach with bibliometric methods to analyze the use of concrete media in mathematics learning in elementary schools from 2019 to 2024. The analysis was conducted on 54 articles from various reputable sources to map the use of concrete media in elementary school mathematics. The use of concrete media in elementary school mathematics experienced an increase in the number of publications from 2020 to 2022, and experienced a sharp decline from 2023 to 2024. The types of concrete media that are often used are board media, cards, and general concrete objects. Using concrete press can also help students improve learning outcomes, concept understanding, and improve students' critical thinking skills. Visualization of Research trends through VOSviewer produces several keyword clusters that reflect the primary focus in the study. Then the overlay visualization illustrates that keywords that are light in color indicate that these keywords are still the latest trends and have attracted the attention of researchers in recent years. These findings suggest that Research on concrete media in learning mathematics in primary schools remains relevant and provides excellent opportunities for further Research development.

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