

Transforming Science Learning Through Canva in Elementary Schools: A Systematic Review of Effectiveness and Implementation Challenges

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Abstract

The science learning process in elementary schools still experiences various obstacles in presenting abstract material for students at the concrete operational stage. This study aims to examine trends, effectiveness, and various factors that support and hinder the use of Canva in science learning in elementary school. The research method used is Systematic Literature Review (SLR) with reference to the PRISMA guidelines, through an analysis of 10 relevant articles published in 2021–2025 and obtained from the Google Scholar database. The results of the analysis showed that Canva made a positive impact by helping to visualize materials for easier understanding, increasing students' active participation and critical thinking skills, and supporting increased motivation and learning outcomes (outcomes). The results show that Canva has the potential to be used as an innovative learning media alternative to support more interactive and contextual science learning. Therefore, Canva has the potential to be used more widely in elementary school learning. However, it is necessary to increase digital literacy as well as support for facilities and infrastructure so that its use can run optimally.

Keywords: Canva, Science Learning, Elementary School

INTRODUCTION

In today's digital era, strengthening students' science literacy and critical thinking skills from an early age is highly dependent on the strategic role of Natural Sciences (IPA) education at the elementary school level (Fitri et al., 2022; Zakarina et al., 2024). The essence of science learning is not just the delivery of factual information, but rather a structured inquiry mechanism that requires students to understand natural phenomena through an empirical approach (Angelia et al., 2022; Aras et al., 2021).

Thus, fundamental obstacles in the study of science at the elementary level arise from the contradiction between material that tends to be abstract and Characteristics of thinking students who are still in the concrete operational phase (Imanulhaq & Ichsan, 2022; Kusmiati et al., 2024). If non-visual scientific concepts fail to be presented properly, it has the potential to hinder the absorption of knowledge and trigger misconceptions (Hartanti et al., 2024; Indrajatun & Dessty, 2022). As a solution, the optimization of the achievement of science competency standards is largely determined by the integration of adaptive learning media that is able to transform complex theories into visualizations that are interactive, easy to understand, and relevant to students' reality (Wicaksono et al., 2022; Yulistian, 2023).

Despite the crucial mastery of science literacy, the facts in the field reveal that the enthusiasm of elementary school students in learning science is still not optimal due to learning patterns that tend to be text-centric and less dynamic (Ernita et al., 2024; Sari et al., 2025). The main obstacle in presenting aesthetically

pleasing and diverse teaching media often stems from the limited competence of educators in mastering complex design software ([Ariastika, 2022](#)). This condition creates a disconnect between the characteristics of the digital generation that relies heavily on visual preferences and the reality of the conventional teaching aids available in schools.

In response to this problem, the use of a design platform based on cloud such as Canva present as a transformative instrument that offers easy access through User-friendly and a variety of educational templates that are ready to be personalized by teachers, although there are structural constraints related to connectivity and digital literacy of teachers, these problems can be reduced by making the most of Canva's free features accompanied by capacity building through training ([Sutinah & Suryaman, 2025](#); [Tristina et al., 2025](#)). Canva's implementation in science instruction facilitates teachers to bring together audio, visual, and animation aspects into one interactive medium, which is empirically verified to stimulate active participation while strengthening students' memory of science material that is complex and requires an in-depth understanding ([Indriani, 2024](#); [Kurniawan et al., 2024](#)).

Although the study The use of Canva in education has grown rapidly, with the majority of previous studies tending to be fragmentary and limited to practical application in narrow classrooms ([Nurhosen et al., 2024](#); [Sholikah et al., 2025](#)). To date, there is still a literature gap that holistically synthesizes the efficiency of Canva's media through a systematic methodology, especially in the specification of science instruction in schools. Although a number of studies have reported a positive correlation with learning motivation, scientific agreement on its impact on cognitive achievement in certain science subjects still shows inconsistencies in findings ([Bella et al., 2024](#); [Nasuha & Elfrianto, 2025](#)). Furthermore, an in-depth review of the technical barriers and pedagogical complexity experienced by teachers in collaborating with Canva to visualize science concepts has not been integratively documented in a literature review ([Rahmadaniyah et al., 2025](#); [Ramadhani et al., 2025](#)).

Based on this background, this article aims to present a Systematic Literature Review (SLR) study that aims to map research trends, evaluate effectiveness, and dissect the factors that hinder the integration of Canva in elementary science learning through a comprehensive analysis of research databases published in the last five years.

METHOD

This study applies the Systematic Literature Review (SLR) which focuses on the PRISMA guidelines (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). PRISMA is applied as a systematic framework to ensure transparency and accuracy in the stages of searching, filtering, and analyzing scientific articles that are appropriate by the research topic ([Faisal et al., 2024](#); [Maharani & Wahyuni, 2024](#)). Implementation of the method Systematic Literature Review (SLR) includes five essential phases which include the formulation of research questions, search and mapping of relevant literature, classification and critical evaluation of articles, synthesis of content from selected publications, and in-depth interpretation of findings,

all of which are in line with the basic premise of SLR which emphasizes organized review and comprehensive analysis to gain a comprehensive understanding of the phenomenon (Jaes et al., 2022; Nurfadilah et al., 2022).

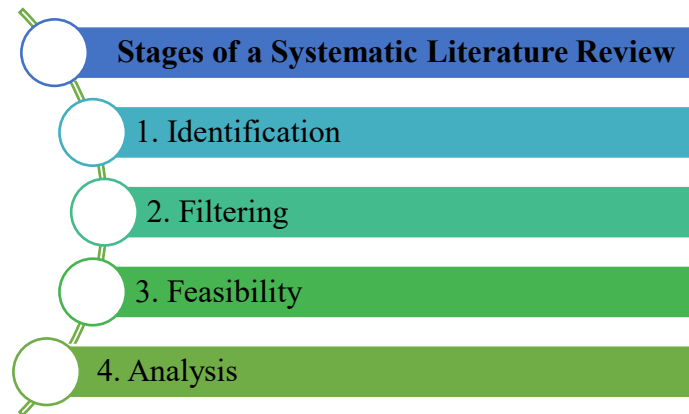


Chart 1. Stages of the Systematic Literature Review (SLR) Method

This study uses the Systematic Literature Review (SLR) approach by collecting primary data from <https://scholar.google.com> database. The inclusion criteria set include articles sourced from accredited national journals, published between 2021 and 2025, and focus on the use of Canva in science learning at the elementary school level. Article search was carried out in March 2026 using the first keyword, "Canva" which generated 198,000 documents. After being limited in 2021–2025, the number will be 45,500 documents. The addition of the second keyword "Science learning" was added with the word AND, narrowing the results to 7,420 documents. The search continued by adding a third keyword, "Elementary School," and adding the word AND reduced the results to 5,778 documents. After going through a comprehensive screening and feasibility evaluation stage, 48 articles were found to be studied in depth, until 10 final articles that met the quality standards were selected to be synthesized.

Although the reviewed articles had variations in journal accreditation ratings that affected aspects of internal validity, the study maintained the reliability of the findings through rigorous selection procedures and transparently documented bias risk analysis. The assessment of the quality of literature is carried out through a descriptive approach to dissect the strengths and limitations of each article in depth. The researchers evaluated various potential biases, ranging from the internal validity and reliability of the instruments to selection and reporting biases. This step is crucial to ensure that the synthesis of findings in this study remains objective and based on the methodological context of each primary source. This selection is visually summarized in the literature search stages chart below.

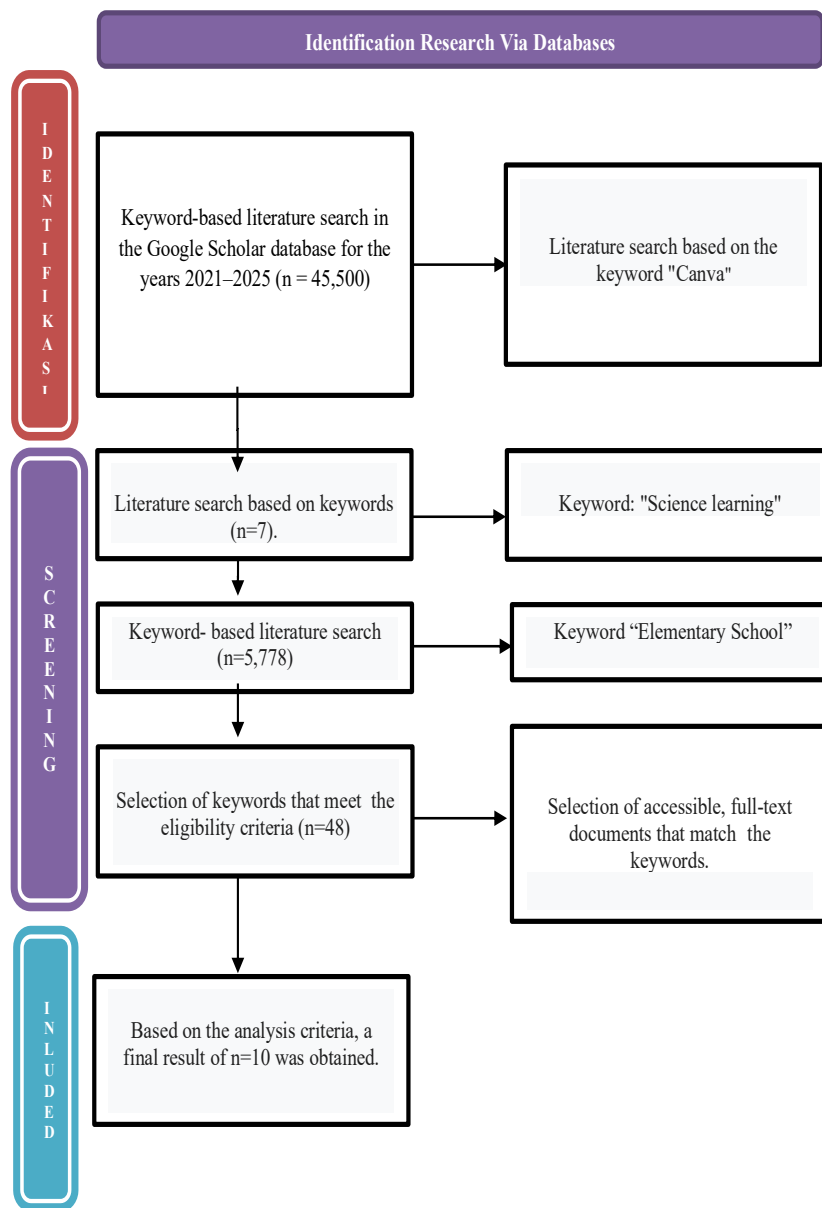
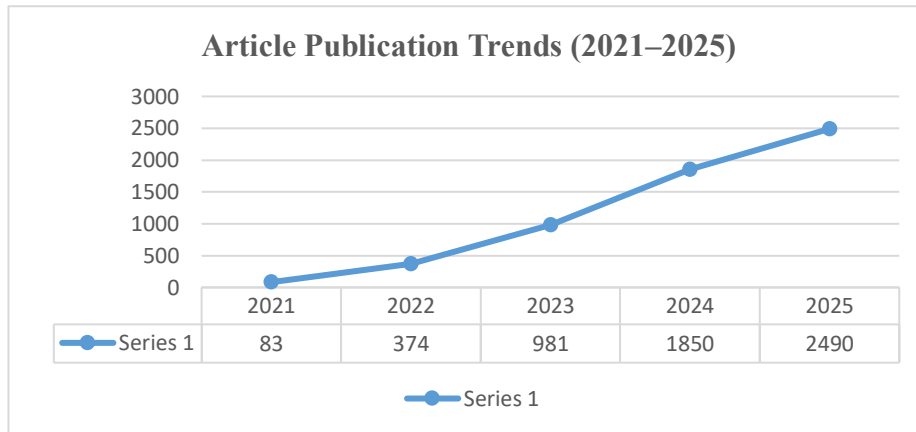


Chart 2. Inclusion criteria in the google scholar database

RESULT AND DISCUSSION

Results

This study examines the development of publication trends and research themes using data obtained from Google Scholar during the period 2021–2025. The results of the analysis show that there is a variation in the number of articles published each year as an illustration of the dynamics of the development of studies in this field, which is shown in Graph 1.



Graph 1. Publication Developments Related to the Transformation of Science Learning Through Canva in Elementary Schools from the Range of 2021–2025

The data visualization in Graph 1 confirms a consistent trend of increasing literature on the Transformation of Science Learning Through Canva in Primary Schools. The data displayed are preliminary search results in Google Scholar which are general or rough, so they still include various types of publications that are widely relevant and have not gone through a further screening process. The growth in publication volume was recorded quite significantly, starting from 83 documents in 2021, increasing to 374 documents in 2022, and reaching 981 documents in 2023. The acceleration of publication continues until 2024 with 1,850 documents, and reaches its peak in 2025 with a total of 2,490 documents.

The dominance of publications in 2025 represents the high urgency of research in the field of digital instructional media. However, it should be understood that these figures do not reflect the number of articles actually used in the study, but are still an overview of research trends. Therefore, the data findings are a starting point for researchers to conduct a more in-depth selection and analysis process to evaluate the effectiveness of the use of Canva in science learning at the elementary school level, especially in helping to visualize abstract science concepts for students.

After mapping bibliometric trends in the 2021–2025 period, the research continued with a systematic study of the selected articles. Through a selection process based on the quality of the methodology and the relevance of the research results, 10 articles were obtained that met the inclusion and eligibility criteria for further analysis. The results of the synthesis of the article are presented in the following table.

Table 1. Results of Reviews of Articles Related to Research Topics

No	Article Title and Writing	Article Identity	Types of Research	Research Results	Weaknesses or Limitations of the Study	Evaluation of Methodological Quality
1	The Influence of Canva	Journal of Innovation ,	Literature review method.	This study concludes that Canva is one of	The limitation of this study lies in the use of the	(Moderate Risk): Not explained

	Application Use in Science Learning Media in Elementary School (Indriani, 2024)	Evaluation, and Learning Development (JIEPP), 4(2), 330–339		the right digital platform choices to create innovative science learning. Canva's uniqueness and interesting features allow this application to be used as a very effective learning medium.	literature review method so that it does not present empirical data directly in the field and depends on the quality of the sources analyzed	systematic literature search protocols such as PRISMA) and publication bias (tend to choose studies with positive results against Canva)
2	Model Implementation Problem Based Learning Help Canva on Science Learning Class V Elementary School (Ansya & Salsabilla, 2025)	ISLAMIK A: Journal of Islam and Education, 7(1), 1–14	The research method is a qualitative approach with a case study design.	The use of Canva in the Problem Based Learning method is effective in increasing students' learning activity and critical thinking skills in science learning. This approach also facilitates collaboration, creativity, and presents learning solutions that are in line with technological developments.	The limitation of this study is the use of a case study design with limited subjects, making it difficult to generalize the results to a wider population	(Moderate Risk): The sample was limited to one class context and researcher bias (interpretation of the data is highly subjective)
3	Implementation of Canva-Based Interactive Learning Media in Science Learning: Qualitative	THEMATIKA C EDUCATION: Journal of Elementary School Education, 6(2), 109–118	The research method of the descriptive qualitative approach.	The application of Canva as a digital learning medium in science learning in elementary schools has been proven to make a positive contribution to	This descriptive qualitative research has limitations in the subjectivity of the data and the absence of quantitative measurements that can	(Moderate Risk): Observer/interpretation bias (perception-based data) and social desirability bias (responses tend to be positive)

	Studies in Elementary Schools (Edlin et al., 2025)			increasing concept understanding, learning interest, and active involvement of students. In addition, this platform facilitates teachers in presenting abstract material through more interesting and easy-to-understand visualizations, thus supporting the creation of a learning process that is in line with the demands of 21st century competencies.	strengthen the level of statistical effectiveness.
.4	The Effectiveness of Using Canva Apps as Learning Mediums IPA MI/SD (Wulandari & Mudinillah, 2022)	Journal of Research Madrasah Ibtidaiyah (JURMIA), 2(1), 102–118	Literature review method.	The use of Canva as a learning medium for science subjects at the MI/Elementary level has been proven to have a positive impact on increasing concept understanding, learning motivation, and active participation of students through the presentation	As a literature review-based research, this study does not test directly in the field so it has not described the real conditions of learning specifically. (Moderate Risk): Secondary source bias (relying on previous research) and confirmation bias (tendency to choose results in favor of Canva)

				of more interesting material. In addition, Canva makes it easier for teachers to develop digital learning media and supports the realization of an interactive learning process that is aligned with the demands of 21st century education.		
5	Development of Canva-Based Teaching Media in Elementary Science Learning On the Matter of the Human Nervous System (Hasani et al., 2025)	Journal of Basic Education, 6(1), 94–106	This research uses the Research and Development (R&D) method by adopting the ADDIE development model.	Canva-based learning media on human nervous system material received very decent assessments from material experts and media experts. The results of its implementation in grade VI students of SDN Sugihwaras show that the media is effective in increasing students' understanding of concepts and learning motivation.	Media testing is carried out on a limited scale, so the results of the research do not necessarily apply to different school conditions	(Low Risk): External validity bias (results are difficult to generalize) and implementation bias (effects are influenced by test school conditions).
6	Training on the use of Canva in Creation of	ASAWIKA Journal: Social Media of	The methods applied in this service	Community service activities at SDN 92 Singkawang	The research is more directed at strengthening teacher	(Moderate Risk): Outcome measurement

	Science Based Learning Media A Brief History of Elementary School Teachers, Singkawan g (Kusumawati et al., 2025)	Abdimas Widya Karya, 10(02), 6–13	activity include presentations, discussions, demonstrations, and hands-on practice.	Utara have succeeded in improving teachers' ability to use Canva as a STEAM-based science learning medium. In addition to strengthening educators' digital competence, this program also supports the presentation of science materials through more interesting visualizations so that they are easier to understand by students.	competence, so that its impact on student learning outcomes has not been studied in depth	bias (focus on teachers, not students) and lack of impact evaluation bias.
7	The Impact of Using Canva-Based Interactive Media in Science Learning on Students' Critical Thinking Skills Grade VI Elementary School (Supriatna, 2025)	Pendas: Scientific Journal of Basic Education, 10(1), 881–887	This research Using the design of the pretest-posttest experiment control group with two groups.	The use of Canva-based interactive media has shown effectiveness in improving students' critical thinking skills, which is marked by an increase in average scores from 70 on the pretest to 88 on the post. In addition, the application of this media also contributes to increasing students' motivation to	The conduct of the research in a relatively short time allows the results obtained not to fully reflect the long-term impact	(Low Risk): Internal validity bias (the possibility of external variables influencing the outcome) and short-term effect bias

				learn and active participation during the learning process.		
8	Improve learning outcomes through Canva media in Science Learning Material for Self-Adjustment of Living Being Towards the Environment in Grade V Students of SDN 08 Ternate City (Marasabes sy, 2025)	Journal of Education and Economics (JUPEK), 6(2), 145–150	This study uses the PTK method.	The application of Canva as a learning medium has been proven to be able to improve the activities and learning outcomes of science students in grade V of SD Negeri 8 Ternate City. The increase in learning activities was seen from 63.25% in Cycle I to 77% in Cycle II, while the completeness of learning outcomes increased from 43.75% to 81.25%.	Classroom action research is situational and involves limited subjects, so the results tend to be specific to specific contexts	(Moderate Risk): Contextual bias (class-context-specific outcomes) and Hawthorne effect (increase due to special attention).
9	Teacher Skills In Utilizing Canva And Quiziz In Science Learning at SD Negeri Kotagede 3 (Andriani et al., 2023)	Journal of Our Teachers, 7(4), 681–689	The research method used in this study is a descriptive qualitative method.	The results of the study showed that grade VI A teachers have the ability to develop PowerPoint-based teaching materials using Canva and integrate Quizizz as a learning evaluation medium. The application of these teaching	The research was only conducted in one class and was more descriptive, so it did not provide a broad picture.	(Moderate Risk): Single-site bias and descriptive bias (no causal analysis).

				materials has been proven to increase students' interest and motivation during the learning process.		
10	Canva-Based Animated Video Media Development with Addie Model on Science Learning to Improve the Learning Achievement of Grade V Students in Elementary School 2 Yehemban g Kauh (Yanti et al., 2024)	Tarbiatuna : Journal of Islamic Education Studies, 4(3), 68–81	This research uses the Research and Development (R&D) method by applying the ADDIE development model.	Canva-based animation videos on science learning at SD Negeri 2 Yehembang Kauh have been proven to meet the criteria of feasibility, practicality, and effectiveness. The results of the expert validation showed a feasibility level of 80% from media experts and 83.3% from material experts, supported by positive responses from students and teachers, as well as an increase in student learning outcomes by 20%.	Testing of the product is still in its early stages, so its effectiveness in the long term and on a wider scale is not yet known.	(Low Risk): Early-stage evaluation bias and limited sample bias (results are not stable for generalization)

Based on various studies, the use of the Canva application in science learning in elementary schools has been proven to have a positive impact (Kusumawati et al., 2025; Andriani et al., 2023; Edlin et al., 2025). Canva helps students understand learning materials more easily through engaging visuals while increasing their involvement in learning (Indriani, 2024; Wulandari & Mudinillah, 2022). Its joint use such as Learning model *Problem Based Learning* (PBL) can also improve students' critical thinking skills, even student scores have increased significantly (Ansya & Salsabilla, 2025; Supriatna, 2025). In addition, Canva-based media is

proven effective use and able to improve Understanding, motivation, and student learning outcomes (Hasani et al., 2025; Marasabessy, 2025; Yanti et al., 2024).

Discussion

The results of an analysis of ten scientific articles show that the implementation of Canva in science instruction in elementary schools has a wide range of impacts, from media transformation to learning outcome optimization. Based on the results of the study Indriani (2024) underscores Canva's position as a crucial digital platform that facilitates educators in designing innovative teaching media with a strong visual aesthetic. These findings are in line with the study Ansya & Salsabilla (2025), which found that the combination of Canva's technology and the Problem Based Learning (PBL) is able to stimulate active participation and sharpen the critical thinking of grade V students through visual support in problem-solving activities.

On the other hand, using Canva has proven to be an effective solution in presenting complex science topics. Edlin et al. (2025) explains that Canva helps teachers visualize abstract concepts into more concrete ways that increase students' interest in learning. This is reinforced by Wulandari & Mudinillah (2022) which confirms that the ease of Canva's features accelerates the creation of digital media to strengthen understanding of concepts. In addition, Hassan et al. (2025) indicates that interactive media developed using Canva In the material of the human nervous system, it is highly validated and is able to increase learning motivation by up to 85%.

Effectiveness not only influenced by its attractive appearance, but also by a simpler and more directed way of presenting the material. Canva supports visual microliteracy through the use of icons, colors, and infographics that help students understand information concisely without having to read long text. With a neat layout and structured templates, students' attention becomes more focused on the core material, so that the learning process takes place more efficiently (Edlin et al., 2025; Wulandari & Mudinillah, 2022).

In addition, Canva's features also play a role in reducing Cognitive Burden of Students That Are in Line with the Principles *Cognitive Load Theory* (CLT), because the information is presented gradually and not excessively (Sweller et al., 2011). This condition is in line with the theory *Multimedia Learning* submitted by Richard E. Mayer, which states that Presentation of information in a structured and integrated manner between Delivering material through a combination of text and visuals has been proven to support the improvement of student understanding (Mayer, 2009). In addition, the combination of short and visual text also supports the processing of information through two channels, as explained by Allan Paivio in the theory of dual coding (Paivio, 1991). This reinforces the finding that Canva not only increases engagement, but also contributes directly to understanding as well as the achievement of student learning outcomes (Indriani, 2024; Hasani et al., 2025; Yanti et al., 2024).

These positive changes also have an impact on increasing the professional capacity of teachers and diversifying teaching strategies. Kusumawati et al. (2025) shows that training in the use of Canva with the STEAM approach has improved teachers' digital literacy in simplifying complex science phenomena. Empirically, Supriatna (2025) Validating this effectiveness through an increase in students' critical thinking scores from an average of 70 to 88. In addition, in an effort to improve learning in the classroom, Scarlett (2025) documented through Classroom Action Research (PTK) that Canva was able to boost learning completeness from 43.75% to 81.25% on the topic of living adaptation.

At a more advanced stage, the application of this technology shows a level of maturity through integration between platforms. Andriani et al. (2023) revealed that the synergy between Canva as a material presenter and Quizizz as an evaluation measurement tool has been proven to increase interest in learning holistically. This series of discussions ended with the findings of the Yanti et al. (2024) about the development of Canva-based animated videos that have received high appreciation from students while making a real

contribution to the increase in learning achievement by 20%. In summary, the results of this study show that Canva is a learning medium that is not only effective practically, but also relevant in supporting science learning that is adaptive to the times.

To clarify these results, these findings can be understood through three main trends. First, from a cognitive perspective, the use of Canva shows a trend of increasing concept understanding, engagement, and students' critical thinking skills in understanding science concepts (Jaes et al., 2022). Second, from a pedagogical perspective, Canva encourages role changes teachers are able to develop creativity and innovation in designing Digital-based learning (Ernita et al., 2024; Yanti et al., 2024). Third, although it provides many benefits, the application of this technology is still faced with a number of obstacles including limited supporting infrastructure and the readiness of users' digital literacy, so that support is needed in the form of training and the provision of facilities so that its use can run more optimally (Aras et al., 2021; Edlin et al., 2025).

As a deepening of these three trends, the use of Canva in science learning also shows a typical pattern of implementation, especially in materials that are abstract and require visualization. Canva is widely used on topics such as human body systems, the adaptation of living things, as well as basic concepts of science. The ANG is abstract so it is not easy to observe directly (Aras et al., 2021; Edlin et al., 2025). This shows that Canva is more predominantly used in science branches that emphasize conceptual and visual understanding, such as biology and some basic physics concepts in elementary school (Kusumawati et al., 2025; Andriani et al., 2023; Edlin et al., 2025).

Furthermore, these findings show a valuable novelty in science learning, namely a shift from a textual-oriented approach to more interactive visual-digital learning (Ernita et al., 2024). Canva's utilization is not limited to the visual design aspect, but it is also evolving as a pedagogical tool that is capable of bridging abstract concepts into more concrete. Thus, the use of Canva as a digital learning medium contributes to providing a meaningful, contextual, and attuned learning experience in line with the development of education in the era of digital transformation (Yanti et al., 2024).

However, Canva's integration in science learning is inseparable from various inhibiting factors that need to be examined in more depth, not only oriented to the technical aspects of use, but also pay attention to pedagogical principles in learning. From a technical point of view, limited internet access and network stability are still major obstacles, considering that Canva is an online-based platform that requires an adequate internet connection to access the features optimally (Aras et al., 2021; Edlin et al., 2025). In addition, the uneven availability of devices such as laptops or tablets in each school also limits the maximum use of Canva, especially in areas with limited educational facilities (Kusumawati et al., 2025).

From the aspect of facilities and infrastructure, not all schools have support adequate availability of digital infrastructure, including projector devices, ICT facilities, and stable internet connectivity, so the use of Canva still depends heavily on the readiness of each educational institution (Aras et al., 2021; Kusumawati et al., 2025). Meanwhile, from the aspect of digital literacy, The implementation of learning technology still faces challenges in the form of uneven digital competence of teachers in integrating technology effectively, both at the technical level of operation and in the pedagogical integration of digital media into the learning process (Andriani et al., 2023; Edlin et al., 2025).

Furthermore, from a pedagogical and cognitive perspective, the use of Canva also needs to be careful so as not to cause excessive cognitive load in elementary school students. Visualizations that are too rich, colorful, or complex have the potential to bring up Seductive Details Effect, which is a condition when interesting but irrelevant visual elements actually distract students from the core concept of science being studied. This can interfere with the process of understanding concepts, Especially for elementary school

students who, according to the theory, cognitive development are still in the concrete operational phase, so an appropriate learning approach is needed. Therefore, teachers need to have competence in simplifying visual design to keep it informative, focused, and in accordance with learning objectives. As such, ongoing efforts are needed in the form of training, mentoring, and strengthening school policies to support Canva's optimal integration in science learning. Its application needs to be studied thoroughly, not only from a technical aspect, but also based on pedagogical considerations to stay in tune with Cognitive Characteristics of Students in the Developmental Phase of Elementary School Age (Kusumawati et al., 2025).

It should be emphasized that in this systematic review, a critical evaluation of the literature is carried out comprehensively to minimize the risk of bias. Although there were variations in methodological limitations in the articles reviewed, the results of the data synthesis showed significant consistency of findings. This reinforces the argument that Canva's media effectiveness is resilient and not limited to one particular context, but is verified through the accumulation of empirical evidence from a variety of relevant field studies

CONCLUSION

This study confirms that the integration of the Canva platform in science education in elementary school plays a crucial role as a connecting medium between abstract science concepts and students' concrete operational cognitive mindsets. The use of this interactive visual media generally strengthens students' motivation and active involvement through visual simplification of complex scientific phenomena. A literature review indicates that Canva's potential lies in its ability to reduce cognitive load while facilitating pedagogical transformation for educators to deliver more innovative learning. Despite the limitations of digital infrastructure in various regions, optimizing Canva's potential as a transformative learning tool relies heavily on collaboration between teachers' creative competencies and the availability of adequate technology facilities

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