



Introducing learning models focusing on elementary school science activity in terms of a systemic literature review

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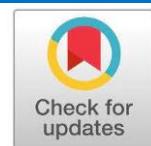
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Abstract: Education is an effort made by individuals to follow the learning process. Implementing and selecting the appropriate learning model is critical to achieving ideal learning success. This study examines learning models for increasing science learning activities in elementary schools. The research method applied in this study is the Systematic Literature Review (SLR). This systematic approach allows us to investigate and synthesize the latest research findings in primary school learning. The data obtained comes from literature studies using the PRISMA approach through the stages of identification, screening, eligibility, and Inclusion. The data came from the Google Scholar or Google Cendikia databases, with the research time range covering the last six years, from 2018 to 2023. The results of this study obtained a database with the keywords "Learning Model" AND "Science Learning Activity" AND "Elementary School Students." the results were selected, and ten articles were taken that met the inclusion criteria for analysis. To achieve the best possible learning success for students, implementing suitable learning models in scientific instruction in primary schools can positively affect their learning activities. It is recommended that further research be able to describe more learning models in increasing science learning activities in students in elementary schools.

Keywords: Learning model; science learning activity; elementary school students.

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INTRODUCTION

Education aims to raise the caliber of human resources, especially in developing one's intellect and personality to distinguish them from one another. Intellectual development, accompanied by character education, is carried out by a long-term learning process planned and structured to increase knowledge and insight or solve all problems faced ([Isroyati & Nurhidayati, 2020](#)). The National Education System Indonesia Law No. 20 of 2003 Article 3 indicates that the learning process is an effort made regularly to develop a noble personality and the ability that exists in students to be faithful, knowledgeable, independent, creative, capable, and responsible as well as a dignified civilization in order to educate the sustainable life of a nation. According to [Badawi \(2023\)](#), the right way to shape the nation's character is by studying formal and non-formal education. Thus, education in schools becomes a benchmark for realizing the progress of quality human potential as a multidimensional creature toward its perfection, along with the times needed for sustainable development in a nation ([Mahendra, 2019](#)).

According to The National Education System Indonesia Law No. 20 of 2003, Article 37 Paragraph 1 stipulates that the education curriculum, mainly primary and secondary education, must include Natural Science subjects to enhance students' knowledge and interpretation of the surrounding natural environment. According to [Safira et al. \(2023\)](#), the basic concepts of science education implemented at the elementary school level are very important because students need to know in preparation for the next level of education or everyday life related to the environment. Science comes from the English word *Natural Science*; the word *Science* is interpreted literally as scientific knowledge, while the word *Natural* is nature. So, it can be concluded that Science is a scientific discipline that understands the scientific concepts of everything about phenomena that exist in the universe, both inanimate and living objects ([Kumala, 2016](#); [Rohmani, 2019](#)).

The problems often encountered with the existing reality are that the teaching process in science applied in schools still needs to be as desired. Specific problems often encountered in schools are low teacher competence, facilities, and learning activities that can lead to low student achievement. This is evidenced in the 2015 PISA survey; according to data from the Organization for Economic Cooperation and Development, Indonesia came in at 69 out of 76 nations in the science category ([Prasasti, 2018](#)). Although the survey was conducted on junior high school students, it does not rule out the possibility that the provision of knowledge has been owned since the elementary level. This is consistent with heuristic data that suggests teachers still need to fully incorporate active and innovative learning in scientific instruction, which results in a lack of variation in the learning process and subpar classroom management ([Winangun, 2022](#)). The lack of learning activity and mastery of science causes low student achievement ([Awang, 2015](#)). According to [Saputra and Setyawan \(2020\)](#), low achievement can be caused by various things, such as external influences from professors who are not as creative in their teaching and internal variables from students themselves, such as their interest in learning science.

They are seeing the importance of science learning in elementary school. To ensure that learning is realized effectively and efficiently and that a student-centered learning process is achieved, innovative teaching methods are essential to the success of education. For this reason, creative teachers are needed in the classroom. [Elizar \(2017\)](#) stated that the primary key to the success of education is the teacher; as a learning agent, the teacher has a central role in the success of a quality learning process. Teachers play a role in educating students by providing appropriate guidance, direction, and evaluation ([Wahyudi & Neviyarni, 2021](#)). It is clear that science instruction in primary schools needs to be done correctly, and part of this concerns the teacher's job as a facilitator of learning. The goal is to realize student activeness in learning science material as a whole and meaningful so that learning success is achieved and the knowledge gained can be implemented in daily activities.

The existence of renewal in learning activities over time is expected to optimize the success of learning. According to [Prasanti and Purnomo \(2019\)](#), fun teaching can get students active while following the learning mechanism to increase learning success. A good and enjoyable learning process includes all activities related

to mental and physical activity involvement. Martinis Yamin in [Mardelina & Muhsan \(2017\)](#) suggests that learning activity is an effort individuals make to develop knowledge, both mental and physical activity. According to [Amalia and Sutisnawati \(2022\)](#), earning activities are actions students take as contributions by asking questions, answering, and doing assignments during learning—the importance of maintaining activity in learning to achieve optimal student learning success. As a result, efforts must be made to enhance the number of learning activities during the learning process. [Sardiman \(2018\)](#) suggests eight types of student activity in learning which consist of 1) mental activity, 2) emotional activity, 3) listening activity, 4) oral activity, 5) motor activity, 6) visual activity, 7) writing activity, and 8) drawing activity.

One way to realize more effective and enjoyable knowledge when learning science is with the innovations made in the learning process ([Rohmani, 2019](#)). To encourage students to participate actively in their education and achieve the best outcomes, innovations in the learning process can be implemented in various ways, such as utilizing learning models tailored to the unique needs of scientific classes and learners. According to [Prihatmojo and Rohmani \(2020\)](#), the learning model is a series of before, during, and after learning activities carried out by teachers to educate students to learn actively. By applying a suitable learning model to students, it is expected to have a positive influence on the achievement of learning objectives. Learning models aim to give pupils engaging, simple-to-understand, and meaningful material ([Muliadi et al., 2022](#)).

Many studies have related to the use of learning models in elementary schools ([Ana, 2018](#); [Murfiah, 2017](#); [Yanti et al., 2020](#)). However, it is still rare to review what learning models can improve the science learning activities of elementary school students. Previous research may have yet to explore learning models with unique appeal sufficiently and can significantly improve primary school students' science learning activities. Therefore, this research allows us to record and analyze the publication of learning models that have been proven successful in improving activities in science learning for elementary school students.

By exploring exciting and effective learning models, this research can provide practical guidance for teachers to be more innovative in choosing models to improve elementary school students' science learning activities. In addition, the findings from this study can also be the basis for further research in developing learning models that are more effective and relevant to current educational needs. Thus, this research is expected to make a meaningful contribution to improving the quality of science learning at the primary school stage.

Based on the background above, there needs to be more expectations and reality in elementary school teaching and learning activities in science subjects. Using a suitable learning model is a solution to the problems faced. Thus, research related to this will be conducted. This research aims to introduce learning models focusing on elementary school science activity in terms of a systemic literature review.

METHOD

This study's methodology uses the Systematic Literature Review (SLR) approach. SLR is a type of qualitative research; this method is used to define, evaluate, and find all the findings to solve problems by finding answers to predetermined questions. In its use, the SLR method is carried out by reviewing and identifying several journals structurally, and each process will follow steps per predetermined criteria ([Triandini et al., 2019](#)). In conducting SLR research, researchers can find a basic framework and problem formulation to be developed into a discussion through predetermined stages.

The type of data applied in this research is from literature studies. Several types of literature review can be taken from various sources such as journals, theses, and review articles. According to [Pilendia \(2020\)](#), literature research is a method used to gather all information or data from sources about the subject of the study. After the data is collected, descriptive analysis will be carried out by clarifying the facts and providing a brief explanation. The literature review data in this research was identified from Google Scholar. The stages of this research study are: 1) defining the topic or problem to be reviewed, 2) identifying relevant reference materials through Google Scholar, 3) selecting the results obtained from Google Scholar according to the specified criteria, 4) compiling a synthesis matrix of the results obtained, and 5) concluding the review results ([Parinata & Puspaningtyas, 2022](#)). The Systematic Literature Review (SLR) research stages are presented in Figure 1 as follows.

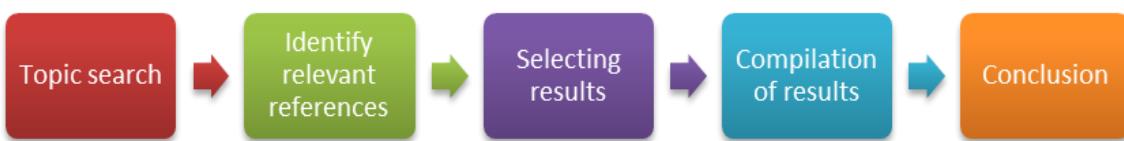


Figure. 1 Systematic Literature Review (SLR) Stages Chart

This study uses the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach through the stages of Identification, Screening, Eligibility, and Inclusion (Nightingale, 2009). To complete this research, researchers analyzed the Google Scholar or Google Cendikia database by searching for the results of scientific article publications within the last six years (2018-2023). Search for journal articles on the web page <https://scholar.google.com/>. The research was conducted in December 2023 by using the keywords "Learning Model," AND "Science Learning Activity," AND "Elementary School Students" then selecting and retrieving articles that are relevant to the keywords and according to the established inclusion criteria—the inclusion criteria for searching articles on Google Scholar as follows.

- 1) Research articles containing keywords of learning models, science learning activities, and elementary school students.
- 2) Publications in the last six years (2018-2023).
- 3) Accredited by the Science and Technology Index (SINTA).
- 4) Articles using English and Indonesian.

5) Types of journal articles (not theses and thesis), full text, and accessible.

The flow of the article selection process based on the inclusion criteria and the PRISMA approach is shown in Figure 2 as follows.

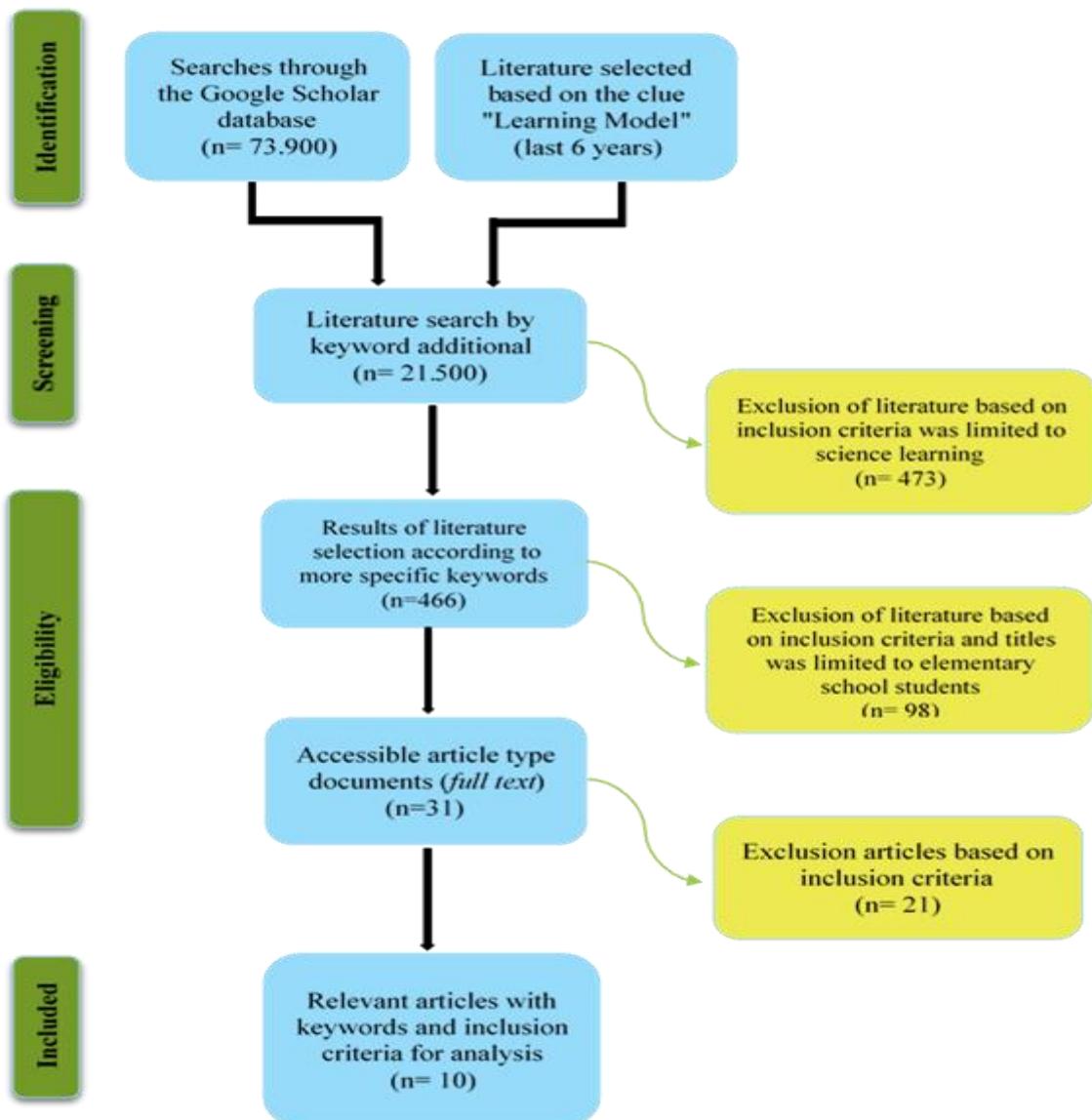


Figure. 2 Flow of Article Selection Process

RESULTS AND DISCUSSION

The literature search results in this SLR study were carried out according to the inclusion criteria and the PRISMA approach. The final selection of articles on learning models that can increase science learning activities in elementary school students was obtained. These results were obtained from four stages as follows.

1. Identification

In the identification stage, researchers collected data on articles on learning models sourced from Google Scholar. The search began with the keyword "Learning Model" with a range of the last six years; the total number of articles obtained was ($n = 73,900$).

2. Screening

At the screening stage, the literature search was based on additional keywords. The initial search added the keyword "Learning Activities," which obtained results for articles ($n = 21,500$)—and then focused based on title criteria with limited to science learning, which obtained results with a total of articles ($n = 473$).

3. Eligibility

At the eligibility stage, to be more specific, the keyword "Elementary School Students" was added with the acquisition of articles ($n=98$). Then, the type of document selection was only journal articles with the acquisition of articles ($n = 21$).

4. Including

The final data obtained based on the inclusion criteria set is obtaining articles at the including stage. This article will later be analyzed and discussed. The final search and selection obtained articles ($n = 10$).

The purpose of the literature review search results in the Google Scholar database is to verify how research findings are presented about pertinent keywords. The results of the publication analysis obtained will be selected from 2018 to 2023 or from the last six years determined in the form of graphs and tables containing explanations. The literature search was based on predetermined criteria. The number of keyword-based loading documents published in the last six years is shown in Figure 3 as follows.

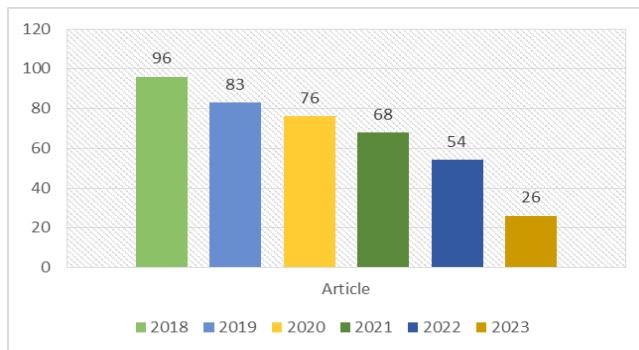


Figure. 3 Number of Publications from 2018-2023 on Google Scholar database with search keywords
"Learning Model" AND "Science Learning Activities" AND "Elementary School Students"

Figure 3 above shows the results of the number of keyword-based loading documents published in the last six years. The literature search obtained is based on predetermined keywords but has yet to be thoroughly selected according to the established inclusion criteria. This research focuses on journal articles.

The results of article analysis, apart from being based on keywords, also use the PRISMA approach, which obtained 73,900 documents from the initial literature search from the Google Scholar database using the keyword "Learning Model" with a span of the last six years these documents consist of the categories of books, theses, thesis, and articles. A further literature search by adding the keyword "Learning Activity," which resulted in 21,500 documents, then focused on the title criteria limited to science learning, which resulted in 473 documents. Furthermore, to be more specific, the keyword "Elementary School Students" was added with the acquisition of 98 documents. Then, the selection of document types is only journal articles, with 21 articles acquired. The 21 articles published based on keywords will be selected again based on the criteria set, and ten relevant articles will be obtained for review. The following are the results of a review of 10 articles related to learning models in improving students' science learning activities in elementary schools, which are shown in Table 1 as follows.

Table 1. Recapitulation of the reviewed articles

No.	Title of Article & Author	Learning Models	Research Results
(1)	Application of Two Stay Two Stray Cooperative Learning Model to Improve Activity and Learning Outcomes of Science Elementary School Students' (Hajar & Surya, 2018)	Cooperative Two Stay Two Stray (TSTS)	The application of the TSTS learning model was proven to be successful in increasing the activity and learning outcomes of science at elementary schools 007 Sungai Agung for grade IV students. The results of tests conducted at the end of each cycle prove that the more active students participate in learning, the more the science learning outcomes will continue to increase.
(2)	Implementation of Somatic Auditory Visualization and Intellectually (SAVI) Learning Model to Improve Science Learning Activity and Result (Purwaningsih et al., 2018)	Somatic Auditory Visualization and Intellectually (SAVI)	Implementing the SAVI learning model at elementary schools in Kependilan for grade V students of science subject matter has proven to improve learning activities and outcomes in the cognitive, psychomotor, and affective domains, as seen from the student response questionnaire, which continues to increase.
(3)	Application of Think Pair and Share Cooperative Type Learning Model to Increase Science Learning Activities of Grade III Students of elementary schools 004 Bangkinang Kota (Apriyanti et al., 2019)	Cooperative Type Think Pair and Share	Applying the Think Pair and Share type cooperative learning model can increase learning activities at elementary schools 004 Bangkinang Kota for grade III students in science subjects. Judging from the continued increase in each cycle in student learning activities with the categories of moderately active and active..
(4)	Improving Post-Pandemic Science Learning Activities with the CLIS Learning Model for Grade V Elementary Students (Ariana, 2022)	Children Learning in Science (CLIS)	The application of the CLIS learning model at elementary schools 3 Budakeling for grade V students, through teaching with this model in science subjects, was proven in each cycle to increase learning activities.
(5)	Application Cooperative	Cooperative	Students are encouraged to participate

Continued Table 1 Recapitulation of the reviewed articles

	Learning Model Type of Course Review Horay (CRH) to Increase Activity and Science Learning Outcomes of Class V Students of State Elementary School 21 Sawah Tangah (Safrizal et al., 2022)	Learning Model Type of Course Review Horay (CRH)	actively in the learning process when the CRH cooperative learning approach is used. The increase in the percentage of completeness that students achieve in each cycle indicates that this learning is beneficial in enhancing the science activity and learning outcomes for grade V students at elementary schools 21 Sawah Tangah.
(6)	The Influence of Quantum Teaching Learning Approach on Science Activities of Elementary School Students (Nurmala et al., 2022)	Quantum Teaching	Applying the Quantum Teaching learning model can significantly increase science learning activities at elementary schools in Mandai Makassar City in class V students.
(7)	Application of Problem Based Learning Assisted by Comic Based E-Book to Improve Science Learning Activity and Result (Puteri, 2023)	Problem Based Learning (PBL)	Comic-based e-books with the PBL approach can enhance learning activities and outcomes for grade IV science students at elementary schools Bareng 5. The increase is based on activity data and learning outcomes achieved by students during the learning activities in Cycle I and II.
(8)	Implementation of Make a Match Model Assisted by Pocket Book Media to Increase Science Learning Activities (Sariyyah & Abdullah, 2023)	Make a Match	Implementing the Make a Match model assisted by Pocket Book at SDK St. Ambrosius Ende 6 for grade IV students can improve science learning activities and results in each cycle. The percentage of student learning activities in each cycle in the moderately active and highly active categories shows the effects of this rise.
(9)	Efforts to Improve Student Learning Activities Using the Quantum Learning Model Theme of Events in Life Class V Elementary Schools 101911 Sidodadi Batu 8 Deli Serdang in class V students (Putri & Landong, 2023)	Quantum Learning	Using of the Quantum Learning learning model with video media in teaching in elementary schools 101911 Sidodadi Batu 8 Deli Serdang in class V students, the average percentage of student activity observation results in each cycle indicates a rise in science learning activities.
(10)	Analysis of the Application of the Numbered Heads Together (NHT) Learning Model to Increase the Activeness of Learning IPAS in Grade V Elementary Students (Sugiaty et al., 2023)	Numbered Heads Together (NHT)	Learning activity can be increased when the NHT learning model is used in grade V IPAS classes in primary school. The vast majority of students who actively use the NHT model for learning attest to this improvement.

Based on Table 1, the results of the literature review of 10 articles sourced from Google Scholar based on the inclusion criteria and the PRISMA approach, it is known that these learning models can increase elementary school science learning activities. These learning models include: 1.) Two Stay Two Stray (TSTS) Cooperative Learning Model, 2) Somatic Auditory Visualization and Intellectual (SAVI) Learning Model, 3) Think Pair and Share Cooperative Learning Model, 4) Children Learning in Science (CLIS)

Learning Model 5) Cooperative Learning Model Type of Course Review Horay (CRH), 6) Quantum Learning Model, 7) Problem-Based Learning (PBL) Learning Model, 8) Make a Match Learning Model, and 9) Numbered Heads Together (NHT) Learning Model.

This literature review systematically explores a range of engaging learning models in primary schools, focusing on improving science learning activities and the last six years (2018-2023). This research searched literature sources from Google Scholar and Google Scholar to gain a comprehensive understanding of the learning models that have been researched, which show that the learning models are successful in increasing the science learning activities of elementary school students.

Learning models are essential in science subjects because they have many significant benefits, including increasing student learning activities. Using the suitable learning model allows students to actively learn directly, such as doing practicum, experimentation, and observation. This process encourages students to think critically, analyze information, and create solutions to problems faced. Students have the opportunity to have a meaningful experience in learning, namely understanding scientific concepts directly. This allows students to understand the material better because direct experience is often more memorable than just reading or hearing. In line with this opinion, [Muliadi et al. \(2022\)](#) stated that the more active students are in the learning process, the more their students understand the subject matter studied, and the optimal learning outcomes will also be optimal.

Based on the literature search results, ten articles that met the inclusion criteria were obtained. The article's research findings are connected to a learning model that enhances primary school science instruction for kids. Table 1 above lists how the study's use of learning models has been shown to boost student learning activities. In the Big Indonesian Dictionary (KBBI), activity means being active in working or doing activities. Activity can be defined as a state in which an individual is performing an activity or action. There are many forms of activity, including in the learning process. Active learning allows students to develop their potential. Thus, it is necessary to create active learning that can facilitate the growth and development of the potential and interests of students ([Amalia & Sutisnawati, 2022](#)).

Using learning models is one of the many aspects that affect learning success. Teachers must be creative in realizing good learning conditions based on the objectives and characteristics of students by determining, adjusting, and applying the suitable learning model so that it can attract students' interest and active role in learning. According to the study's findings, using the appropriate learning model can increase learning activities and achieve the best possible learning outcomes ([Sugiaty et al., 2023](#)). Based on the results of the review of the ten articles, the following is a discussion.

(1) Two Stay Two Stray (TSTS) Cooperative Learning Model

The TSTS cooperative learning model means two stays and two guests. This learning emphasizes that students share information with other groups to solve all the problems and then return to their groups to discuss and make conclusions ([Zairmi et al., 2019](#)). According to [Handayani & Slameto \(2018\)](#), the

implementation of the TSTS model has several stages, namely: 1) Group formation, 2) Determination of the topic, 3) Discussing and presenting information, and 4) Application of the TSTS model, and 5) Presentation of group results. This type of instruction allows students to collaborate in groups through games, which can pique their interest in learning. The results showed that the use of the TSTS model at State Elementary School 07 Sungai Agung for grade IV students could improve science learning activities and results; this is predicated on the outcomes of the tests that have been conducted by students in cycle I with the percentage of active students totaling 73% (categorized as quite active). In contrast, in cycle II, the number increased to 87.5% (categorized as active), and it shows that the more active students participate, the more science learning outcomes will continue to increase ([Hajar & Surya, 2018](#)).

(2) Somatic Auditory Visualizationand Intellectualy (SAVI) Learning Model

The SAVI Learning Model is learning that focuses on utilizing all the sensory and emotional tools that students have because this learning involves intellectual activity and physical movement. According to [Sihwinedar \(2015\)](#), this SAVI model is implemented in several stages, namely: 1) Preparation, 2) Presentation, 3) Training, and 4) Presentation. In its application, students not only gain knowledge but also master and face directly something that is learned. The results of research with the SAVI model at State Elementary School Kepedilan on grade IV students learning science prove that student activity and learning outcomes in the psychomotor, cognitive, and affective parts as evidenced by the questionnaire of student activity in learning in cycle I, cycle II, and cycle III which continues to increase ([Purwaningsih et al., 2018](#)).

(3) Think Pair and Share Cooperative Learning Model

The Think Pair and Share cooperative learning model is a teaching that directs students to exchange knowledge with their friends and other groups ([Rukmini, 2020](#)). According to Ibrahim in [Hidayah & Faishol \(2019\)](#), there are three steps of the Think Pair Share model, namely: 1) Thinking, 2) Pairing, and 3) Sharing. In its implementation, this model conducts discussion activities so that students can work together by sharing information they have, building closeness between fellow group members so that no students sit still in the learning process. The results of research conducted at State Elementary School 04 Bangkinang Kota on grade III students of science learning content, applying the Think Pair and Share cooperative learning paradigm can increase student learning activities. Cycle II's observation shows increased learning activities, with 78.04% classified as active ([Apriyanti et al., 2019](#)).

(4) Children Learning in Science (CLIS) Learning Model

The CLIS learning model is based on constructivism theory because students are required to cultivate their knowledge, and this learning can realize an active and fun learning situation. The CLIS learning model incorporates direct experience and calls for pupils' ideas or solutions to problems ([Ratnasari et al., 2017](#)). According to Suryani et al. (2018), the steps of the CLIS learning model are as follows: 1) Adjustment, 2) Appearance of ideas, 3) Idea formation, 4) Application of ideas, and 5) Affirmation of ideas. In the classroom, to ensure that learning activities increase and produce the best learning results, teachers strongly

emphasize students' active participation in various activities throughout the learning process. Learning activities in the CLIS model include students in implementing, presenting, clarifying, and concluding activities. The findings from studies using the CLIS model at State Elementary School 3 Budakeling for grade V students show an increase in science learning activities in each cycle seen from the overall value of 68%, categorized as high, and 32%, categorized as low. Thus, this learning paradigm can result in more science-related learning activities ([Ariana, 2022](#)).

(5) Course Review Horay (CRH) Cooperative Learning Model Type

The CRH-type cooperative learning model is a teaching that realizes the learning conditions in the classroom are lively and fun because it is based on games to solve problems and requires group cooperation ([Ridho, 2018](#)). According to [Arsani et al. \(2018\)](#), some stages of the CRH model are: 1) Submission of learning objectives and materials, 2) Group formation, 3) Test of understanding, 4) Random reading of questions by the teacher, 5) Discussing to solve problems, 6) Those who answer correctly are given shouts of "Hooray" or group yes-yel, and 7) Rewarding the winner. In this learning, students must be emotionally and orally active, which is the advantage of this model in increasing student learning activities. The study's findings using the CRH cooperative learning model demonstrate that science education activities at State Elementary School 21 Sawah Tangah for grade V students have increased, as seen through the graph in cycle I and cycle II, which reached a percentage of more than 80% ([Safrizal et al., 2022](#)).

(6) Quantum Learning Model

Quantum learning means interaction in collaboration because the learning process must have much diversity in both material and student characteristics. Several types of Quantum learning models include Quantum Learning and Quantum Teaching. The Quantum Learning model can realize exciting learning conditions with various nuances, democracy, planting, and understanding of concepts from the results of investigations, drawing conclusions, and increasing student learning motivation to arouse active participation in learning ([Djenawa, 2020](#)). Furthermore, the Quantum learning model (Quantum Teaching) is a learning process that the teacher applies to make the learning environment effective, and the delivery of information becomes easier to understand so that it is meaningful for students and teachers themselves ([Supramono, 2016](#)). The steps of the Quantum learning model are: 1) Cultivate interest in learning, 2) Doing experiments, 3) Naming knowledge, 4) Presentation of results, 5) Repetition, and 6) Reinforcement. The findings of studies conducted using Quantum Learning learning models in conjunction with video resources for instruction at State Elementary School 101911 Sidodadi Batu 8 Deli Serdang in class V students saw a rise in science learning activities, as indicated by the average percentage of cycle I observation of learning activities, which was 68%, rising to 91% in cycle II ([Putri & Landong, 2023](#)). Similar research was also conducted applying the Quantum Teaching learning model, and the findings demonstrated that this approach significantly increased the amount of science-related learning activities at State Elementary School Mandai Makassar City in class V students ([Nurmala et al., 2022](#)).

(7) Problem Based Learning (PBL) Learning Model

The PBL model is a constructivist teaching method that directs students to think critically to understand the concepts learned and solve all learning-related problems. According to [Alamiah & Afriansyah \(2017\)](#), the steps of the PBL model are: 1) The familiarization process, 2) Grouping of students, 3) Individual and group guidance, 4) Presentation of results, and 5) Evaluation. In its application, this model allows students to apply the knowledge or understanding learned for application in daily activities. It has been demonstrated through study that applying the PBL learning model with comic-based e-books enhances science learning outcomes and activity at State Elementary School Bareng 05 in grade IV students as seen from the mean proportion of educational activities in cycle 1 totaling 85.34% categorized as good and cycle II totaling 88.23% categorized as perfect activity ([Puteri, 2023](#)).

(8) Make a Match Learning Model

The Make-a-Match learning model is a game-based teaching method that allows students to find pairs of cards with a time limit and a fun classroom atmosphere to understand a learning concept ([Wijanarko, 2017](#)). According to [Fauhah & Rosy \(2021\)](#), the stages of this learning model are: 1) Providing cards, 2) Distribution of cards, 3) Searching for card pairs, 4) Discussion, and 5) Reward. In teaching, students are allowed to interact so that they are not passive by just listening to the teacher provide information but looking for it themselves. The results of research that implemented the Make a Match learning model using Pocket Book media at SDK St. Ambrosius Ende 6 in class IV students demonstrated that the number of science learning activities increased from 49% in cycle I, which was classified as moderately active, to 91% in cycle II, which was classified as highly active ([Sariyyah & Abdullah, 2023](#)).

(9) Numbered Heads Together (NHT) Learning Model

The NHT learning model is a teaching pattern that focuses on the full involvement of students in gaining acceptance and understanding of the concepts being learned. According to [Nourhasanah & Aslam \(2022\)](#), the steps of the NHT learning model are: 1) Group formation, 2) Assignment, 3) Group discussion, 4) Reporting results, and 5) Conclusion. Learning activities with this model are student-centered. In teaching, this learning model focuses on critical thinking and cooperation in a group that aims to realize optimal learning outcomes. The results of research on the use of the NHT model of IPAS learning in grade V elementary school students indicate that there is an increase in student activeness; this is demonstrated by the rise in the proportion of pupils participating actively in the educational process ([Sugiat et al., 2023](#)).

CONCLUSION

Based on the results and discussion of the analyzed literature study, various learning models can be applied in the learning process, and these models are very helpful in increasing learning activities and the amount of knowledge obtained by elementary school students. In the context of science education in primary schools, it is essential to continue to develop and evaluate learning models that can improve student learning activities. Through Systematic Literature Review (SLR) research with the PRISMA approach, this study

successfully identifies various learning models that are interesting and effective in increasing students' engagement in science learning. These learning models include: 1.) Two Stay Two Stray (TSTS) Cooperative Learning Model, 2) Somatic Auditory Visualization and Intellectual (SAVI) Learning Model, 3) Think Pair and Share Cooperative Learning Model, 4) Children Learning in Science (CLIS) Learning Model 5) Cooperative Learning Model Type of Course Review Horay (CRH), 6) Quantum Learning Model, 7) Problem-Based Learning (PBL) Learning Model, 8) Make a Match Learning Model, and 9) Numbered Heads Together (NHT) Learning Model.

By exploring interesting and compelling learning models, this research can provide practical guidance for teachers to be more innovative in choosing models to improve primary school students' science learning activities. For students to have the best possible learning success, implementing appropriate learning models in science classes in primary schools can positively affect their learning activities. It is recommended that further research can develop more learning models to increase science learning activities in students in elementary schools.

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