

## **REVIEW OF PROBLEM-SOLVING IMPLEMENTATION IN ELEMENTARY SCHOOLS**

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**Abstract:** Problem-solving is the ability of students to solve problems through a systematic thinking process. This research is focused on the implementation of problem solving, especially in elementary schools. This review summarizes the findings of a literary study on problem solving in elementary schools published from 2016-2022. Researchers use systematic. First, the researcher formulates a research problem, then continues by tracing relevant articles related to problem solving in elementary schools for analysis. Articles are searched using Scopus, and Science Direct. From the search results, there are 142 articles related to Problem Solving. The results of the review revealed that 51% of articles are implementation of Problem Solving in elementary schools. Percentage of aspects that affect Problem Solving in elementary schools learning media, environment, strategies, learning models, student skills.

**Keywords:** problem solving, elementary school

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## **INTRODUCTION**

The condition of the COVID-19 pandemic has varied impacts on students, especially in elementary schools. One of the impacts experienced by elementary school students on the problem-solving aspect. During the pandemic, learning activities were carried out online so a phenomenon emerged that was the impact of online learning applied so far. Students have difficulty understanding and solving mathematical problems in learning activities. *Problem Solving* is a problem-solving model used by educators in the process of teaching and learning activities. Educators have a role in providing a problem/problem to students and providing opportunities for students to express their opinions to build new knowledge. *Problem Solving* is an effort made to build a scientific thinking process through understanding, analyzing, evaluating, and generating new knowledge.

Rulik and Rudnik (1995: 4) define problem solving as the process of thinking: "*Problem solving is the mean by which an individual uses previously acquired knowledge, skill, and understanding to satisfy the demand of an unfamiliar*

*situation*". This understanding means that problem solving is an effort carried out by individuals (students) using their knowledge, skills, and understanding to find solutions or ways to an existing problem. While Ilhan Karatas & Adnan Baki (2013) explained "*Problem solving is recognized as an important life skill involving a range of processes including analyzing, interpreting, reasoning, Predicting, Evaluating and Reflecting*" is an important life skill because it involves the process of analyzing problems, interpreting, reasoning, predicting, evaluating and reflecting.

*Problem Solving* according to Polya (1973) is divided into 4 stages, namely: 1) Understanding the problem (*understanding problem*). At this stage, students can understand the problems given by the teacher. 2) Plan a problem solving (*devising a plan*). At this stage, learners can determine and create appropriate models, determine strategies or the method to be used. Students can write down the steps in solving problem-solving. 3) Carry out the plan. In this stage students carry out a predetermined plan to plan problem solving. At this stage, learners can understand the substance of the material and skills in problem-solving. 4) Re-examine the solution obtained (*looking back*). At this stage students reflect by checking back, retesting predetermined solutions, or looking for other alternative answers. In line with the *Problem Solving* steps developed by J. Dewey are: 1) Formulating problems, knowing and formulating problems clearly; 2) Analyzing problems, using knowledge to detail analyze problems from various angles; 3) Formulating hypotheses, imagining and live the scope, causation and alternative solutions; 4) Collecting data and grouping data as material for proving hypotheses, the ability to search and compile data presenting data in the form of diagrams, figures, and tables; 5) Proof of hypothesis, Ability to analyze and discuss data, ability to connect and calculate decisionmaking skills and conclusions. Factors that influence student problem solving in learning: 1) internal factors, external factors, and approach strategies used. Internal factors are factors that come from within the learner. While external factors are factors that come from outside the student.

## METHOD

Researchers conduct literature reviews using the *Systematic Literature Review* (SLR) type of research to systematically assess and look for proof of a problem. Online articles are searched using *Scopus* and *Science Direct* SD related to *Problem Solving*. We determine research questions, the search process, the implementation of problem solving in elementary schools, and factors that influence *problem solving* learning in schools, followed by analyzing those obtained from the *review literature*.

The search process is carried out using *the Scopus* and *Science Direct* databases. Searching articles from publications for the period 2016 – 2022, 142 articles relevant to *problem solving* were obtained. From searches using the keywords "Problem Solving" and "*Elementary School*" obtained several relevant articles, then selected articles that meet the criteria of "*Problem Solving*". Literature search involves 2 stages, namely the initial stage and the 2nd stage related to sorting relevant articles based on the aspects studied. In the first stage, the researchers conduct an initial search and review of abstracts and conclusions. An initial article

search yielded 142 relevant articles related to *problem solving* in elementary schools. In the second stage, researchers read and screen articles relevant to problem solving.

## RESULTS AND DISCUSSION

The results of the study by searching *Scopus* and *Science Direct* obtained as many as 142 articles from online journals. Article searches cover issues from 2016 to 2022. Keywords used in searches for "Problem Solving", elementary school".

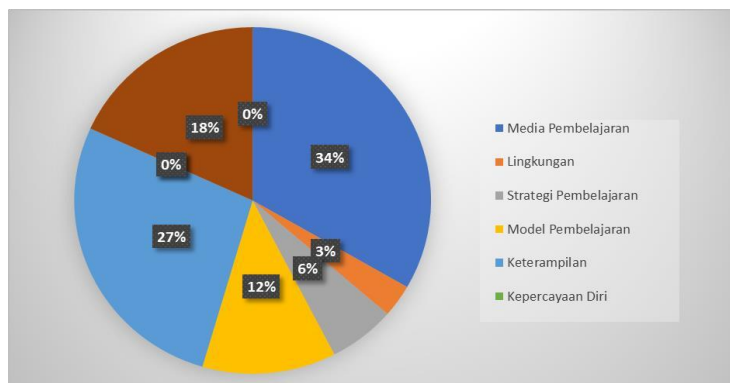
Diagram 1. Problem Solving in Elementary School



Table 1 Types of research

Types of Research	Frequency	Introduce yourself (%)
Quantitative	7	27 %
Qualitative	6	23 %
R & D	4	15 %
Experiment	9	35 %
	26	100%

Diagram 2. Aspects that Affect *Problem Solving* in Elementary School



Search results using a database obtained as many as 142 articles. The article was

analyzed by looking at the implementation of *problem solving* in elementary schools and obtained as many as 26 articles that were linear with the topic. The results of diagram 1 describe 51% of articles applied at the primary school level. In addition, table 1 shows that the 26 articles were obtained with a percentage of 27% qualitative research, 23% quantitative research, 15% development research, and 35% experimental research.

The analysis' result related to aspects that affect *problem solving* at the elementary school level, obtained 7 aspects, namely learning media, environment, learning strategies, learning models, skills, and self-confidence. The percentage in the learning media aspect of 34% means that there are many studies related to learning media. The lowest percentage is obtained from environmental aspects of 3%. Aspects of learning media have a role in solving student problems (S.Y. Huang, 2020); Jusmawati, 2021). The skills of students become an influential aspect in problem solving at the elementary school level (H.E. Rudyanto 2019; L. Ishabu, 2019; S.B. Gültekin, 2022). Environmental aspects are factors that influence students in *problem solving* (H. Sumida, 2019).

## CONCLUSION

This study concludes that many studies related to the implementation of *problem solving* at the elementary school level have been developed. Suggestions for future research need to be further deepened and developed in assessing aspects of the environment, motivation, self-confidence, and independence, especially at the elementary school level.

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