

## An analysis of the picture and picture model as a remedial approach for enhancing comprehension of scientific concepts

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### Abstract

*This study aims to ascertain and scrutinize the augmentation of students' conceptual understanding within the domain of science education through the implementation of the picture and picture learning model. Science learning, a pivotal subject in elementary education, imparts knowledge about various natural phenomena by leveraging the outcomes of empirical discoveries, experiments, and direct observations conducted by students. Employing a data analysis process, this research places significant emphasis on extracting comparative insights gleaned from an extensive review of scientific journals. Data for this study were sourced from reference journals, online databases, and national and international journal collections. The findings reveal that the integration of the picture and picture learning model is associated with an elevated level of student comprehension in science concepts. Moreover, this pedagogical approach fosters active student engagement, rendering the classroom environment more dynamic and enjoyable. Consequently, the study concludes that the picture and picture learning model serves as a viable solution for enhancing science conceptual understanding in elementary education.*

**Keywords:** Picture and picture learning model, understanding concepts, science

### INTRODUCTION

Natural science stands as a fundamental subject within elementary education, offering a gateway to comprehend diverse phenomena in nature and our environment through empirical explorations, experiments, and direct observations facilitated by students. According to Umar (2019), natural science encompasses the study of both living and non-living phenomena. Its educational objectives prioritize imparting knowledge, understanding natural science concepts, and fostering experiential learning to harness students' potential for applicable everyday knowledge. (Dermawan & Andartiani, 2022)

The goals of natural science education encompass several key facets, aiming to instill in students: 1) appreciation of the divine greatness evident in the civilization, beauty, and order of natural creations; 2) acquisition

of practical knowledge and comprehension of natural science concepts for daily life application; 3) development of curiosity, a positive attitude, and recognition of the nexus between environment, technology, and society; 4) cultivation of investigative skills to explore nature, problem-solving, and decision-making; 5) heightened awareness and active involvement in preserving and conserving the natural environment; 6) fostering an appreciation for nature's intricacies as a divine creation; 7) provision of foundational natural science knowledge, concepts, and skills as a springboard for future education.

The attainment of these educational objectives in natural science learning significantly hinges not only on students' engagement but also on the pivotal role played by educators. The involvement of

students in the teaching and learning process is pivotal for the success of educational objectives. Hence, the efficacy of achieving educational goals is intricately linked to the competence of educators. Fundamentally, natural science education aims to equip students with the knowledge and skills requisite for comprehensive comprehension of natural phenomena and, concurrently, to cultivate a reverence for divine creations, fostering an environmentally conscious populace.

Through observations conducted in schools in Bekasi City, augmented by student internship collaborations, a recurring challenge identified in natural science education revolves around the apprehension of concepts, perpetuating as a persistent issue. Literature studies corroborate that the comprehension of natural science concepts might face hindrance in the absence of concrete visual aids.

Consequently, our research posits that these challenges can be mitigated through the adoption of teaching models tailored to the needs and characteristics of elementary school students, such as the Picture and Picture model. As posited by (Ikrom & Putri, 2021), picture and picture learning involves using visual media as learning aids. Ari Susanti and Nyoman Kusmariyani (2017), the Picture and Picture learning model instills a sense of accountability among students within their group dynamic. Consequently, the application of this model is anticipated to augment students' comprehension of natural science concepts by presenting concrete visual representations aligned with the cognitive abilities of elementary students, facilitating a more lucid understanding of presented material.

Ahmad (2014) asserts that the Picture and Picture learning model employs visual aids paired or arranged to facilitate meaningful learning, utilizing images as a pivotal medium

in the teaching-learning paradigm. This model finds particular suitability for elementary school students as it presents material through visual imagery, thereby enhancing comprehension.

Building upon the elucidated challenges, our research introduces an innovative approach titled "Picture And Picture Model Analysis as a Solution in Improving Concept Understanding."

## RESEARCH METHODOLOGY

This study focuses on synthesizing comparative analyses derived from literature reviews across various scholarly journals. The data for this research were acquired through systematic exploration of electronic platforms, including the internet, scientific journals, and online libraries.

Literature review, as elucidated by Dermawan and Maulana (2023), is a comprehensive undertaking involving the examination and evaluation of diverse literature previously disseminated by academics or researchers, pertinent to the subject under investigation.

Building upon this definition, Sundari, Dermawan, and Azmi (2023) posit that literature review encompasses a meticulous exploration and scrutiny of various books, journals, and other publications associated with the research topic. This process aims to culminate in a scholarly composition that addresses specific subjects or issues.

## RESULTS AND DISCUSSION

The instructional approach employing the Picture and Picture model is a pedagogical sequence involving the dissemination of educational content. In this method, educators utilize explicit visual aids to elucidate concepts. The process entails the teacher's presentation and exhibition of tangible pictures, followed by students engaging in collaborative grouping to arrange these

visuals into a logical sequence.

The Picture and Picture learning model, explicated by Ahmad (2014), is an educational paradigm that employs visual elements to be paired or organized in a purposeful order. This approach enhances the meaningfulness of the learning experience, considering the visual component as a pivotal medium within the teaching and learning continuum. Within the framework of Picture and Picture cooperative learning, a dynamic discourse and communication environment is cultivated. The primary objectives encompass students sharing their proficiencies, cultivating critical thinking skills, expressing individual perspectives, providing avenues for showcasing unique abilities, fostering mutual learning, and appraising each other's competencies and roles. As according to Mazrur et al. (2023) that this learning model aims to train students to be able to work together with other friends and learn to be responsible with the tasks they get.

Utilizing the picture and picture learning model facilitates an enhanced comprehension of natural science concepts across various domains: (1) Interpretation, entailing the transformation of information from one form to another, such as converting words into graphs or images, numbers into words, or summarizing and paraphrasing textual content; (2) Exemplification, involving the illustration of a general principle or concept by discerning its defining attributes and utilizing these traits to create representative instances; (3) Classification, the act of categorizing an object or phenomenon based on identifiable criteria; (4) Summarization, encapsulating comprehensive information or generating an abstract from extensive written material; (5) Inference, the discernment of patterns from a series of facts or examples; (6) Comparison, the identification of similarities and disparities between objects, ideas, or situations; and (7) Explanation,

constructing and employing cause-and-effect models within a system.

Research findings derived from the application of the picture and picture model, particularly regarding conceptual comprehension, as demonstrated in Laila's study (2021) titled "The Picture and Picture Method as an Effort to Improve Understanding of the Concept of Caring for Animals in Class II Sdn Kepanjenkidul Blitar City," revealed notable progress in online learning effectiveness. In the initial cycle, students achieved a completion rate of 57%, with 43% remaining incomplete. Subsequent cycles witnessed significant improvements, with cycle 2 recording a 73% completion rate and 27% non-completion, and cycle 3 marking substantial advancement with a 92% completion rate and a mere 8% non-completion. These results reflect the favorable impact of employing the Picture and Picture learning method in enhancing students' conceptual grasp in the specified domain.

Darmayoga and Suparya (2021), in their research titled "Application of Picture And Picture Learning Model to Improve Science Learning Outcomes of Grade IV Students of SDN 1 Penatih," reported that the utilization of the Picture and Picture learning model positively impacted the natural science learning process. The outcomes indicated an enhancement in student learning achievements, aligning with the specified success criteria.

Aningsih and Agustina (2021), in their study titled "Picture And Picture Model as a Solution to Improve Understanding of Concepts in Science Subjects: Water Cycle Material for Elementary School Students," underscored the importance of employing the picture and picture learning model in teaching the water cycle material. Their findings emphasized the necessity for teachers to adeptly apply this model, including the preparation of image media, mastering the

subject matter, and fostering a motivational environment to encourage students to actively contribute within their group dynamics.

Telussa (2020), explored the "Application of Picture And Picture Learning Model in Improving Sociology Learning Outcomes on the Concept of Social Mobility in Pkbn Mekar Sari, Nabire Regency, Papua." The research, conducted across multiple cycles, demonstrated effective implementation aligned with the prescribed learning syntax. The positive outcomes were substantiated by specific research findings, indicating heightened student understanding of the taught material. Furthermore, the study observed increased student engagement, creativity, and attention during the learning process in the classroom.

Mahmudah et al. (2021), in their study titled "Implementation of Picture And Picture Models to Improve Understanding of the Concept of Types of Livelihoods in the Surrounding Environment for Elementary School Students," reported notable advancements in teacher teaching skills across various indicators from cycle I to cycle II. In cycle II, there was a discernible increase in the overall proficiency of teachers in effectively implementing the steps of the picture and picture learning model. The application of this model also demonstrated positive outcomes by enhancing students' understanding of the concept of livelihoods in SD 2 Jojo Kudus. The understanding of social studies content among students in cycle I achieved a success rate of 75% with very good criteria, while in cycle II, it significantly improved to 94%, maintaining the very good criteria.

Yuliastanti and Zuhdi (2018), explored the "Application of Picture And Picture Learning Model to Improve Learning Outcomes in Thematic Learning in Elementary Schools." Their research indicated that the implementation of the picture and picture

learning model had a positive impact on the learning outcomes of grade III Indonesian Language at SDN Drancang Gresik. The outcomes included creating a favorable learning atmosphere and fostering active, enthusiastic, and engaged student participation in the learning process.

Ari Susanti and Nyoman Kusmariyani (2017), conducted a study titled "Application of Picture And Picture Model Based on Scientific Approach to Improve Science." The research involved class action and the subsequent discussion and data analysis results, as previously detailed. In cycle I, classical completeness reached 55% with a mean score of 75.8, indicating a relatively low mastery of students' natural science knowledge competencies. However, in cycle II, there was a substantial improvement, with classical completeness reaching 88% and a mean score of 84.2. This indicates a high mastery of students' science knowledge competencies. The increase in classical completeness from cycle I to cycle II was 38%.

Fauziah, Herdhiana, and Priyanto (2019), explored the topic "Increasing Students' Understanding of Plant Function Material and Its Parts Through the Application of the Picture and Picture Model." The obtained results indicate a significant enhancement in students' understanding of natural science subjects, particularly on the material of plant parts and their functions, through the implementation of the picture and picture model. The data suggest that this model contributes to an increased comprehension of the subject matter among students.

Ahmad (2014), in a study titled "Efforts to Improve Concept Understanding on the Material of Natural and Artificial Appearances in Indonesia IPS Lessons Through Picture And Picture Learning Model in Class V SD Negeri 1 Dewantara," reported that the application of the picture and picture

learning model led to an improvement in students' concept understanding regarding the material of natural and artificial appearances in Indonesia in Class V SD Negeri 1 Dewantara. The research suggests that abstract material content can be concretized through the picture and picture learning model, providing an alternative approach to enhance learning.

The literature review conducted by the researchers highlights the experiential benefits of the Picture and Picture learning model. This model facilitates direct experience through examples presented and explained by educators. Consistent with the findings, Fauziah, Herdhiana, and Priyanto (2019) emphasized that the picture and picture model involves the use of pictures paired or sorted into a logical sequence, relying on visual aids during the learning process. Additionally, Telussa (2020) emphasized the model's benefits for students and groups in acquiring knowledge, fostering confidence in answering questions, and notably enhancing students' competence.

Researchers have identified several articles that elaborate on the application of the picture and picture model in enhancing concept understanding. This proves highly beneficial for teachers in the learning process, particularly in natural science education. The picture and picture learning model aims to develop students' skills, logical thinking abilities, and overcome challenges in understanding concepts. Achieving this goal enables students to become independent in discussions and demonstrations. Consequently, the picture and picture learning model emerges as highly suitable for use in elementary schools, especially in natural science education, addressing challenges in students' conceptual understanding.

## CONCLUSION

Challenges identified in various articles have prompted diverse solutions. However, the solution derived from this study, as referenced in the literature review, advocates for the utilization of the picture and picture learning model. This learning strategy involves the compilation of images, offering a method that aids students in mentally focusing their attention, generating questions, and stimulating interest in discussions. As a result, the picture and picture learning model is posited to contribute to a reduction in obstacles associated with students' conceptual understanding.

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