

EFFECTIVENESS OF *GAS/NG* LEARNING METHOD ON IMPROVING UNDERSTANDING CONCEPT OF ECONOMICS: A SYSTEMATIC LITERATURE REVIEW

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Abstract

This article is a systematic literature review (SLR) that aims to examine the effectiveness of the *GAS/NG* method in improving student understanding in economic concept. The *GAS/NG* method is a teaching method designed to increase the interactive participation of students and educators, while focusing primarily on the student. *GAS/NG*, when implemented, is easy to understand, enjoyable, active, and creative, and encourages students to learn with enthusiasm. This study was conducted using the Systematic Literature Review (SLR) method on journal articles published between 2015 and 2025 in Scopus, ScienceDirect, Sinta, and other national journals. Literature processing was carried out using Publish or Perish, ResearchGate, Connected Papers, and Google Scholar. The articles obtained were analyzed using the PRISMA method, VOSviewer to visualize and analyze bibliometrics, Mendeley, and Zotero. Based on the analysis of relevant articles, it was found that the *GAS/NG* method can also improve economic concept understanding, especially in increasing learning motivation, creativity, and problem-solving skills. This study identifies the success of the *GAS/NG* method in promoting active and collaborative learning, both between peers and between students and educators. The positive impact of the *GAS/NG* method contributes significantly to the learning process and results.

Keywords: *GAS/NG*, Learning, Method, Economics, Understanding

INTRODUCTION

Advances in science and technology in the 21st century have had a major impact on the continuity of life, especially in the world of education, in preparing quality human resources. Therefore, interesting learning is needed to improve students' understanding of the concepts presented.

Conceptual understanding is defined as "the ability to comprehend a concept thoroughly by utilizing logical, critical, creative, and innovative thinking, and being able to account for a concept" (Rosmawati & Sritresna, 2021). Conceptual understanding is a cognitive process that is applied subjectively in understanding an event that combines various levels, including consciousness, behavior, and thinking systems (Soylu, 2016). Conceptual understanding can also be changeable and adaptable to situations, and is organized in a scattered manner in various interconnected elements (Olier et al., 2017).

Based on this definition, it is clear that it is important for students to delve deeply into every explanation provided by educators, even when they are able to draw conclusions from the material explained, especially in social studies and economics education. Social studies is the integration of social sciences and humanities for students to enhance their knowledge, attitudes, values, and skills

in social life (Saputra et al., 2024).

Economic learning is the process by which a person acquires knowledge and understanding of economic concepts, theories, or practices. Economic learning has key components that cover various topics such as economic principles, economic efficiency, and resource management. In the process of assessing and evaluating economic education, students are involved in ensuring the effectiveness of their understanding of economic concepts (Asarta & Butters, 2015). Economic education covers a wide range of subjects in education, development, health, and other areas (Durán-Sandoval & Uleri, 2024). This definition highlights the importance of social studies economics education for students in providing knowledge, skills, and attitudes toward their perspective as members of society and economic actors themselves.

In practice, economics education is often perceived as uninteresting. Conventional teaching methods remain dominant, with educators tending to adopt a lecture-based (teacher-centered) approach, which makes students passive and uncreative, despite the need for a combination of teaching methods or a balance with other approaches. The lecture method, which is often used, focuses on the delivery of material and is one-way, where students only listen and do not play an active role. Students will become bored in the learning process because there is no interaction. To anticipate this problem, educators should utilize more innovative learning methods to improve the quality of human resources.

It is understood that educators and students must have a strong connection in the learning process; when one is more dominant, the other becomes weaker, and vice versa. Therefore, high creativity is needed from both educators and students so that the concepts explained can be understood and learning feels enjoyable. The creativity required of educators is not only the ability to explain but also the ability to choose methods that correlate with the material. Thus, the effectiveness of learning can be seen. Astuti & Wiyanti (2021) state that the effectiveness of learning is the result of improving students' abilities achieved from prior planning. To achieve this success, appropriate learning methods are needed. One method that can be used is the *GASING* method. The *GASING* method is a learning method designed and created to be more interesting, simple, enjoyable, and fun so that during the process, students feel motivated to learn and are able to improve their learning outcomes. The *GASING* method can also stimulate student activity and creativity (Suparyono & Paling, 2024). The *GASING* mathematical method is a method that is "easy, fun, and exciting" in solving problems to achieve results (Kusuma et al., 2019). The *GASING* method was conceived and developed by Prof. Yohanes Surya, Ph.D., who is a prominent figure in Indonesian education. Prof. Yohanes Surya states that the *GASING* method is a simple mathematical method dominated by a logical approach with concrete concept design, starting from the easiest lessons to the most difficult, and calculations are performed by memorization (Gunawan et al., 2021).

Based on this explanation, the author is interested in discussing the development of research on the effectiveness of the *GASING* method in understanding economic learning concepts, with literature processing carried out using the Systematic Literature Review (SLR) method. Mubarak (2022) states that a Systematic Literature Review (SLR) is a research method that re-examines a specific topic, focusing on a single question that has been systematically identified, evaluated, selected, and concluded according to pre-established criteria based on evidence from high-quality research relevant to the research question. This approach has the advantage of yielding valid and applicable findings from multiple previous research sources on a specific phenomenon. This Systematic Literature Review (SLR) was conducted by reviewing journal articles from 2015 to 2025 based on searches in Scopus, ScienceDirect, Sinta, and other national journals. Literature processing was conducted using Publish or Perish, ResearchGate, Connected Papers, and Google Scholar, which

were then managed by the researcher using the PISMA method to present a transparent literature selection. Vosviewer was used for bibliometric analysis, along with Mendeley and Zotero.

RESEARCH METHODS

The method used in this study is Systematic Literature Review (SLR). "Systematic Literature Review is a research method conducted through the identification, assessment, and interpretation of all relevant and appropriate research results related to a specific issue or phenomenon that is currently occurring in society. SLR is a secondary study that reviews various research outputs related to a topic, thereby presenting facts to policymakers in a more comprehensive and fair manner" (Andriani, 2022). The purpose of a Systematic Literature Review (SLR) is to explore the literature to find new things that have not been researched before or require further research, thereby supporting the development of the latest research (Snyder, 2019). The purpose of a Systematic Literature Review (SLR) is also to find and combine referenced research comprehensively based on detailed questions. This is done to apply systematic and structured procedures that can be replicated in subsequent stages or processes (Juandi, 2021). SLR is designed to be repeatable, thereby increasing the level of transparency in the synthesis of scientific knowledge (Page et al., 2021).

Based on the explanation above, to strengthen the basis of this research, this study was conducted using the Systematic Literature Review (SLR) method on journal articles from 2015 to 2025, including Scopus, Science, Direct, Sinta, and other national journals. Literature processing was carried out using Publish or Perish, ResearchGate, Connected Papers, and Google Scholar. The articles obtained were then managed by the researcher using the PISMA method to present a systematic and transparent literature selection process, Vosviewer for bibliometric analysis and data network visualization, Mendeley, and Zotero. The following is the literature selection process through the PRISMA Flow Diagram after article collection and Mendeley literature management.

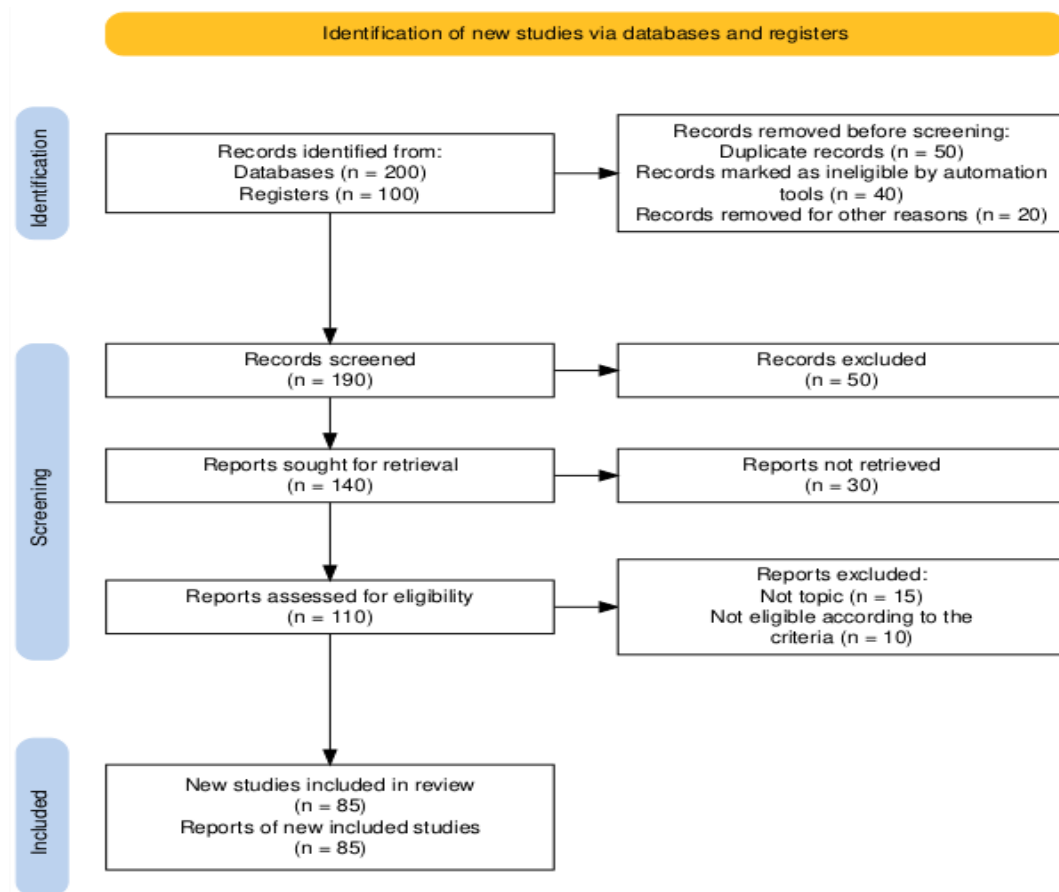


Figure 1. Article Filtering with PRISMA Flow Diagram

Based on the PRISMA Flow Diagram presented, the process of identifying relevant articles on the *GASING* method, conceptual understanding, economic education, and social sciences was carried out in the following steps: In the Identification stage, 300 articles were found through searches in existing databases and registers. Of these, 200 articles came from databases and 100 articles came from registers. At this stage, several articles were removed before the screening process, namely 50 duplicate articles, 40 articles that did not meet the criteria, and 20 other articles that were removed for other reasons.

In the screening stage, 190 articles were screened for further examination. Of these articles, 50 did not meet the criteria and were excluded from the process. Subsequently, 140 articles were identified, but 30 articles could not be obtained. The next step was the eligibility assessment stage, where 110 articles were evaluated for eligibility. Based on the evaluated articles, 25 articles were excluded from further review for specific reasons, with 15 articles deemed irrelevant to the topic or title discussed and 10 others failing to meet eligibility criteria. After data identification and screening, 85 articles that met the criteria were included in the review as relevant new studies. A total of 85 reports from the included articles were also recorded as part of this literature study. Thus, the number of articles included in this systematic review is 85, which are relevant to topics related to the *GASING* method, conceptual understanding in economic learning, economic education, and social sciences.

This section also includes VOSviewer via Mendeley in the storage of literature references to analyze and visualize the relationships between relevant articles.

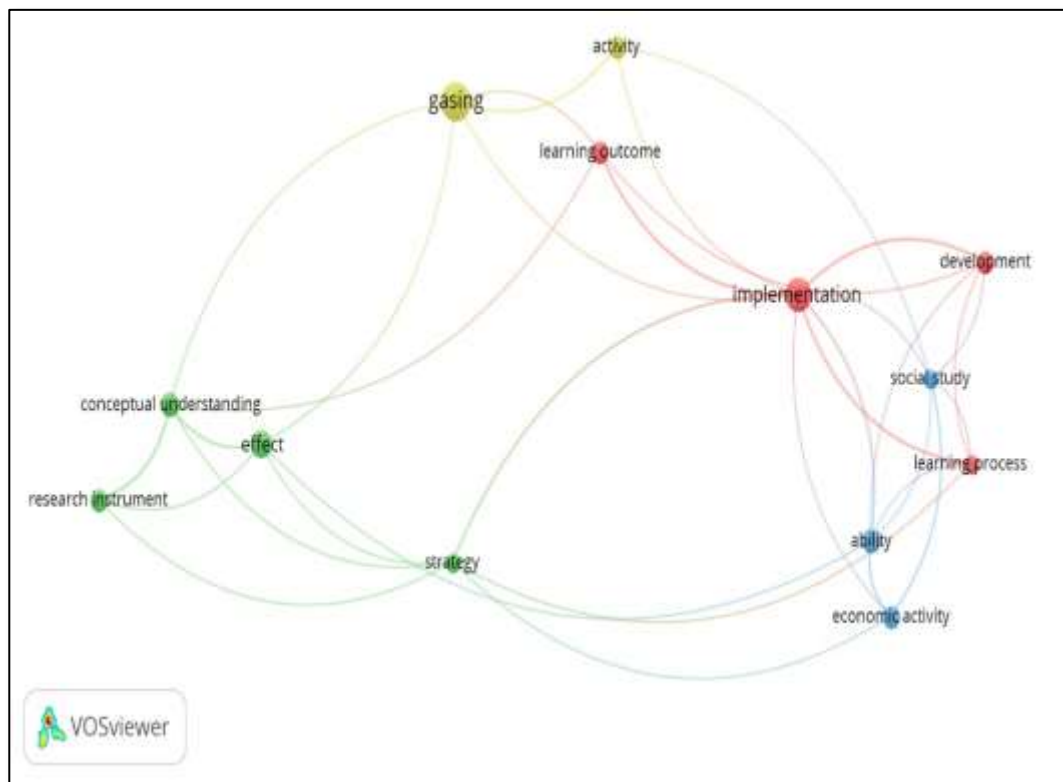


Figure 2. VOSviewer Network Visualization

This study also used data visualization with VOSviewer from 85 articles that met the criteria to see the relationship between keywords from the selected articles. The type of analysis used was co-occurrence of keywords. The more keywords there are, the more points will appear on the map, therefore filtering or selection with a threshold is necessary. The lines between the circles in the figure indicate the relationships between keywords, while the size of the circles indicates the higher frequency within the network.

RESULTS AND DISCUSSION

This section discusses the results of a systematic review describing the effectiveness of the *GASING* method in understanding economic learning concepts. This discussion will also examine the potential and limitations of the *GASING* method in learning.

Reasons for choosing the *GASING* method

Based on the analysis of relevant research articles related to the topic, the results show the influence of selecting and using the *GASING* method in learning. The following diagram illustrates how the *GASING* method is one of the appropriate choices for educators to support the success of teaching and learning activities.

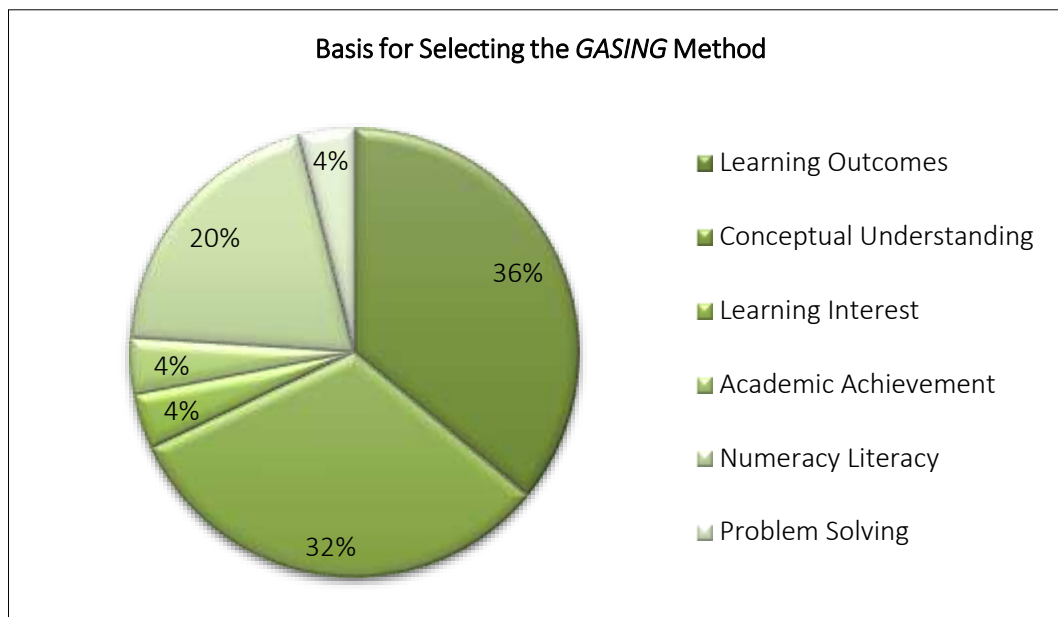


Figure 3. Basis for Selecting the GASING Method

Figure 3 shows that the use of the *GASING* method has a positive impact on learning activities. There are several main reasons for selecting the *GASING* method, including its significant influence on learning outcomes, concept understanding, learning interest, learning outcomes, academic achievement, literacy and numeracy, and problem-solving skills of students in the subject matter. The *GASING* method is designed to create a learning environment that not only focuses on its motto easy, fun, and enjoyable but is also effective in improving the quality of educators and students. The *GASING* method always emphasizes student engagement to remain active in the material presented.

The *GASING* method improves student learning outcomes by 32%. This is based on the principle that learning should be more interactive and exciting, with students receiving continuous guidance from educators in completing each problem given to them, thereby improving the quality of their learning outcomes. In addition to improving learning outcomes, the *GASING* method also has a 32% positive impact on improving students' understanding of concepts. The *GASING* method has three interconnected core stages: concrete, abstract, and application. Therefore, in its implementation, students are not solely focused on one-way explanations or overly reliant on educators. Instead, in *GASING*, students must actively engage in observing and delving into their learning process. Educators provide concrete examples, abstract concepts from real-world scenarios, and finally, estimation, where students are taught to quickly answer questions, whether in the form of calculations or decision-making, so that students will better understand the material based on these stages. 20% improvement in literacy and numeracy. Essentially, the *GASING* method is a mathematics learning method that is easy to implement, enjoyable, and fun based on the three stages described earlier. However, in an economic context, the *GASING* method can also be applied because economics is tied to calculations (numeracy) and literary explanations of the material, making this collaboration beneficial for both numeracy and literacy. 4% improvement in learning outcomes. Good literacy and numeracy achievements in the *GASING* method will also significantly impact the competencies of the students themselves. 4% improvement in academic performance. The use of the *GASING* method has proven to have a positive impact on academic performance. This method is designed to encourage students to collaborate with peers or educators in creating a enjoyable learning environment, thereby improving their academic performance. 4% increase in learning interest. Making learning easy and enjoyable is one of the goals of the *GASING* method. When

students are interested in learning, their enthusiasm and interest in learning naturally increase. That is why it is important to choose the *GASING* method in education. 4% increase in problem-solving skills. The *GASING* method not only focuses on its core concepts but also encourages students to be more creative and active in finding solutions to questions or problems posed by educators. Logically, students must understand and be responsible for the results they achieve. This encourages students to think critically when solving problems, either individually or in groups formed according to their needs.

The *GASING* method involves educators and students actively and creatively collaborating in teaching and learning activities, even integrating them into contexts relevant to real life so that the material becomes easy to understand. Therefore, it is necessary to choose the *GASING* method as one of the methods to improve understanding of economic learning concepts.

Theories used to implement the *GASING* method

In implementing the *GASING* method, several learning theories serve as the foundation to ensure its effectiveness in learning activities. These theories form a comprehensive conceptual basis for explaining the application of the *GASING* method.

This study also describes how the *GASING* method (Easy, Fun, and Enjoyable) is applied in learning integrated with various learning theory approaches with the aim of increasing the effectiveness and active involvement of students. Therefore, it is hoped that students will be motivated to participate deeply in the context of teaching and learning activities. Another aspect that can be examined is how students can also develop their creativity and thinking skills. Several learning theories are used in implementing the *GASING* method, including constructivism, behaviorism, humanism, cognitivism, cooperative learning, active learning, and experiential learning. These learning theories provide the implementation of the *GASING* method in the learning process. This section also includes the percentage of learning theory application using the *GASING* method from relevant articles.

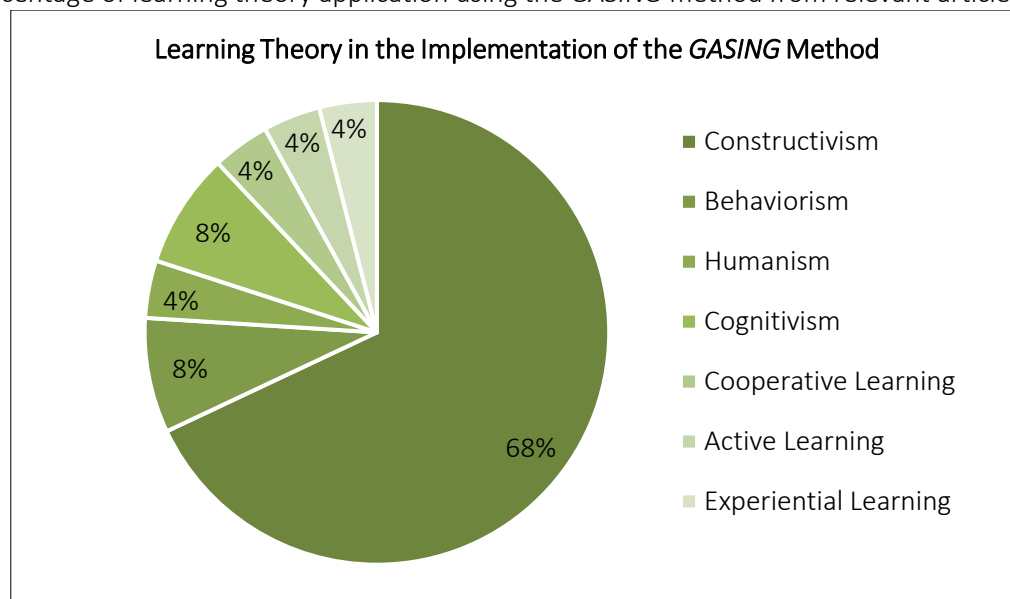


Figure 4. Learning Theory in the Implementation of the *GASING* Method

It was identified that 68% of constructivist learning theory has been implemented in the application of the *GASING* method. Constructivist theory emphasizes active learning processes in which students can build their own understanding and knowledge through various experiences and reflections. This approach is based on the belief that learning is an active, integrated process of

constructing knowledge, not merely acquiring it. In this context, constructivism encourages students to take an active role in learning to create more meaningful learning experiences. Therefore, constructivism is the reason why this approach is applied in various educational contexts, including the *GASING* method.

Cognitive learning theory is implemented 8% in the *GASING* method. The *GASING* method is a cognitive approach designed to enhance mathematical understanding, particularly in elementary education. This method emphasizes active student engagement through interactive games, which not only make learning enjoyable but also deepen conceptual understanding of mathematical operations such as multiplication. The cognitive foundation of *GASING* lies in its ability to foster critical thinking and problem-solving skills, aligning with cognitive theory that advocates experience-based learning. Key aspects of the *GASING* method include active learning, engagement through games, and cognitive development. While the *GASING* method shows promise in enhancing cognitive skills in mathematics, it is important to consider that not all students may respond positively to game-based learning. Some may prefer traditional methods, highlighting the need for a balanced approach in educational strategies. Prasetyo et al., (2020).

Approximately 8% of the *GASING* method is implemented in behaviorist theory. The *GASING* method is based on behaviorism because it emphasizes observable behavior and the learning process through interaction and reinforcement, which are core principles of behaviorism. This method focuses on engaging students in enjoyable and interactive activities to facilitate concept understanding. Behaviorism is evident in how *GASING* promotes learning through direct experience and feedback, aligning with behaviorism's emphasis on observable and measurable outcomes. Behaviorism emphasizes learning through reinforcement and feedback, which is reflected in the *GASING* method's approach to teaching through enjoyable and practical activities. Prasetyo et al., (2020).

There is a 4% implementation of the *GASING* method in cooperative learning theory. The *GASING* method can be said to be closely tied to cooperative learning, specifically aimed at enhancing student engagement and understanding in mathematics, particularly in multiplication. The *GASING* method encourages students to take a more active role through games and collaborative activities, thereby creating a supportive learning environment. The effectiveness of *GASING* is demonstrated by significant improvements in students' understanding and performance. However, while the *GASING* method has shown significant results in enhancing students' understanding, it is important to consider that not all students respond equally to cooperative learning strategies based on their individual abilities, as learning tendencies vary among individuals.

It has been identified that 4% of the *GASING* method is implemented in active learning theory. The *GASING* method, which aligns with the principles of active learning, enhances learning outcomes by continuously motivating students to actively engage in the learning process. The active learning involvement in the *GASING* method also encourages students to participate more, leading to improved academic performance. Active learning also creates a mechanism where feedback is provided to learn from mistakes to prevent repetition.

There is 4% of the *GASING* method implemented in humanistic learning theory. The *GASING* method, rooted in humanistic principles, emphasizes holistic student development by integrating emotional and cognitive learning. This approach fosters an engaging and supportive learning environment, which is crucial for effective education. The following sections outline the key aspects of why the *GASING* method is based on humanism. According to Yuliani et al. (2024), the *GASING* method is a learning method that prioritizes student engagement through interactive and enjoyable activities, which aligns with humanistic values that focus on the needs and experiences of individual students. By promoting emotional education alongside cognitive development, this method

encourages students to connect personally with the material, enhancing their overall learning experience. Wang (2021). However, it is important to note that while the *GAS/ING* method emphasizes humanistic values, some argue that humanistic approaches place a strict focus on emotional engagement, which may lower assessment standards and lead to a lack of discipline in learning.

Experiential learning theory is implemented 4% in the *GAS/ING* method. The *GAS/ING* method, rooted in experience-based learning theory, enhances student engagement and understanding through interactive and enjoyable learning experiences. The *GAS/ING* method encourages active student participation to deepen their understanding of the material presented.

Therefore, the *GAS/ING* method holistically integrates principles from various learning theories, including constructivism, cognitive, behaviorism, cooperative learning, active learning, humanistic, and experiential learning, all centered on the development of students' self-development to create a learning environment that is easy, fun, and enjoyable.

Effectiveness of the *GAS/ING* method

To evaluate the implementation of the *GAS/ING* method, this section summarizes the results of several relevant articles and presents their findings in the form of percentages. The following table summarizes the effectiveness of the *GAS/ING* method in learning.

Table 1. Percentage of effectiveness of the *GAS/ING* method

Author	Article Title	Research Method	Effectiveness (%)
(Lestari & Hardini, 2022)	The Effectiveness of the <i>GAS/ING</i> Mathematics Method in Improving the Ability to Understand Two-Digit Multiplication Concepts for Sixth Grade Elementary School Students	Quasi-Experimental Design	94.74
(Damopolii et al., 2024)	The Use of the <i>GAS/ING</i> Method in Improving Mathematics Learning Outcomes in Multiplication Operations for Third-Grade Students at SDN Inpres 6/84 Walehunian	Classroom Action Research	93
(Suparyono & Paling, 2024)	Improving Multiplication Skills in Third Grade Students at Koinonia Wamena Elementary School Through the Use of the <i>GAS/ING</i> Method in Mathematics Learning	Classroom Action Research	89
(Hidayati et al., 2024)	Application of the cooperative learning method with the <i>GAS/ING</i> method to improve learning outcomes in multiplication in class IVB of SDN O1 Nambangan LOR	Classroom Action Research	88.4
(Napitu et al., 2024)	The Effect of the <i>GAS/ING</i> Learning Method on Students' Mathematical Problem-Solving Skills in the Spldv Material in Grade VIII of SMP Negeri 2 Siantar	Quasi-Experimental Design	87.7

(Latifatunnisa & Kurniawan 2022)	Comparison Between <i>GAS/ING</i> and Conventional Methods on Mathematics Learning Outcomes in Elementary School	Quasi-Experimental Design	87.2
(Gou et al., 2024)	Application of the <i>GAS/ING</i> method in mathematics learning to improve students' interest and learning outcomes in Grade VIII	Quasi-Experimental Design	83.55
(Pagarra et al., 2024)	Application of the <i>GAS/ING</i> Method in Improving Mathematics Learning Outcomes of Fourth Grade Elementary School Students	Classroom Action Research	81
(Diah & Siregar, 2023)	The Effect of the Modified <i>GAS/ING</i> Method TGT (Teams Games Tournament) Learning Model on Students' Mathematics Learning Outcomes	Quasi-Experimental Design	80
(Gultom & Usman, 2024)	The Effectiveness of the <i>GAS/ING</i> Learning Method on Learning Outcomes in Mathematics on Solid Figures for Sixth Grade Students at SDN 173420 Pollung	Quasi-Experimental Design	70
(Rahayu & Manuel, 2024)	The Application of the <i>GAS/ING</i> Method on Students' Learning Outcomes in the Concept of Multiplication	Quasi-Experimental Design	68
(Rusliadi & Azhar A., 2022)	Implementation of the <i>GAS/ING</i> Method on Students' Understanding of Physics Concepts at SMAN 1 Lakudo	Quasi-Experimental Design	67.65
(Ikbal et al., 2021)	The Influence of the Cooperative Script Model using the <i>GAS/ING</i> Method Assisted by Couple Card Media on Concept Understanding	Quasi-Experimental Design	52

Source: PRISMA in 2025

Based on the data in the table, the effectiveness of the *GAS/ING* method varies. The research design used was Classroom Action Research (CAR), Quasi-Experimental Design, Case Study, Pre-Experimental Design, and Qualitative. The highest effectiveness was 94.74% and the lowest was 52%, implying that the *GAS/ING* method is effective in improving students' abilities. The *GAS/ING* method is a learning method that is more dominant in mathematics education, but in its application, the *GAS/ING* method emphasizes student engagement to be active, making learning enjoyable and engaging. Additionally, explanations or initial examples must be based on something real (related to daily life, whether in the home environment, school, or community). Therefore, the *GAS/ING* method is also

considered effective when applied to understanding economic concepts.

The Learning models used to enhance students' conceptual understanding

Based on the research results, the learning models most commonly used to improve conceptual understanding are Cooperative Learning (Teams-Games-Tournament, Role Playing), Active Learning (Index Card Match, ROAR), Discovery Learning, Flipped Classroom, Problem-Based Learning, and Experiment-Based Learning.

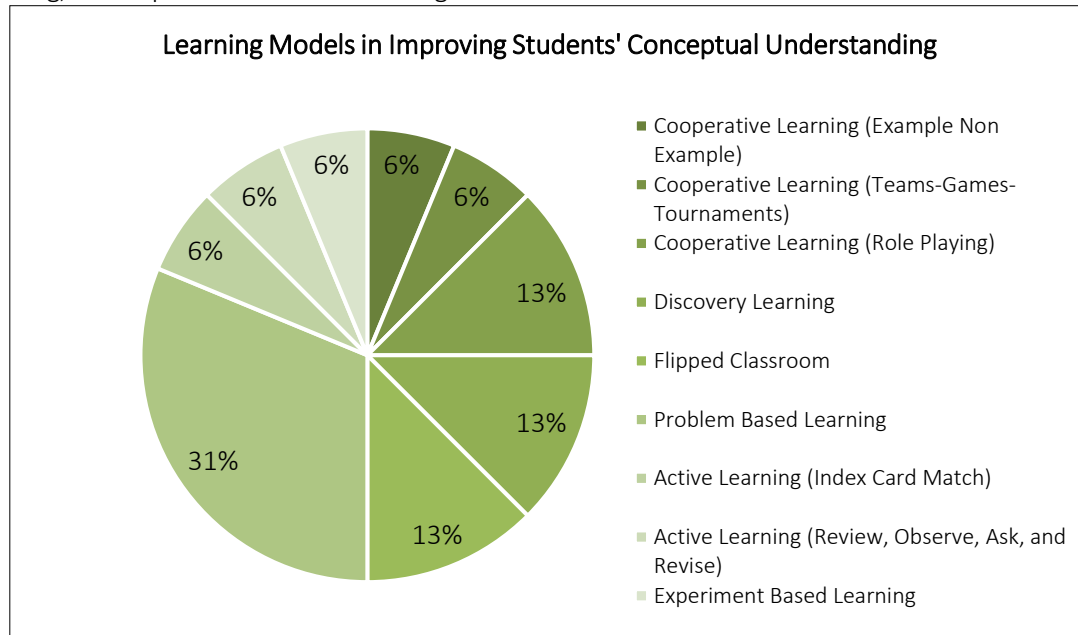


Figure 5. Learning Models in Improving Students' Conceptual Understanding

Figure 5 shows the distribution of various learning models in improving students' conceptual understanding. The learning models presented in this diagram have different approaches but are interrelated and complementary to encourage enthusiasm and active involvement in the teaching and learning process and also improve their understanding of the material concepts presented.

Problem-Based Learning is one of the learning models with the highest percentage among other learning models, at 31%. In this model, problem-based learning encourages students to address real-world problems relevant to the school curriculum. This approach not only hones students' problem-solving skills but also allows them to apply various concepts learned in real-life contexts, whether at home, school, or in the community. This learning model has a positive impact on students by encouraging their critical and analytical abilities. Therefore, this learning model is very effective in improving conceptual understanding.

Discovery Learning has been identified as capable of improving students' conceptual understanding by 13%. In this learning model, students are given the space and freedom to explore and discover new principles or concepts through various experiments. Therefore, students do not merely acquire knowledge passively but also build a deeper understanding through the discovery process they have undertaken themselves.

The flipped classroom model has an identification rate of 13%. In this case, the flipped classroom learning model has a transformational approach, where students are given the opportunity to study the material provided in advance in an open space or outside the classroom. When the time is up, students are directed to enter the classroom, where they are given time to engage in in-depth and practical discussions. This approach allows students to access knowledge first, then use it to

analyze and solve problems in classroom interactions with peers and educators.

Cooperative Learning (Role Playing) has a percentage of 13%. This learning model encourages students to actively engage in deep learning situations, where they play various roles related to the subject matter. This approach not only analyzes students' understanding of concepts but also enhances their social skills and communication abilities in a collaborative learning context.

In addition to role-playing, Cooperative Learning also includes other examples such as "example vs. non-example," which accounts for 6% in enhancing students' understanding. This learning model emphasizes the importance of collaboration among students in learning concepts through a comparative approach between examples and non-examples. In this way, students will find it easier to distinguish between relevant and irrelevant concepts, thereby enhancing their understanding of the material taught by educators.

The third cooperative learning model is Teams-Games-Tournaments, which also plays a role in improving students' understanding of concepts and has been identified as having a 6% impact. This learning model utilizes team-based game and tournament elements to create a more engaging, competitive yet fun and enjoyable learning environment. Through healthy and collaborative interactions, students are encouraged to understand the learning material in a more practical and applicable way. Thus, this process creates a positive learning atmosphere to enhance students' understanding of the concepts themselves.

The Active Learning model using the Index Card Match approach was identified as contributing 6% to the improvement of students' conceptual understanding. In this learning model, students are given index cards containing information or concepts that they need to match with other cards. This matching process is useful in building active interaction between students and educators, which is not only aimed at increasing their involvement in learning, but also helps them organize, arrange, and summarize information systematically. Through this activity or process, students can establish clearer connections between various concepts they have learned, strengthen their understanding, and develop their critical and analytical thinking skills. Therefore, the Index Card Match has a complex function and is not merely a tool to deepen understanding of the material but also promotes the development of essential cognitive skills in students for more comprehensive learning.

Active Learning, namely Review, Observe, Ask, and Revise (ROAR), has an influence of 6%. This approach emphasizes the importance of reflection and revision in the learning process. Students are given the opportunity to review each material, observe examples, ask questions for clarification, and improve their understanding based on feedback from what they have received. The ROAR model encourages a deeper and more reflective learning process and has a significant contribution to strengthening students' conceptual understanding.

Overall, this diagram shows that learning models emphasizing collaboration, active learning, and independent exploration have a significant and substantial impact on enhancing students' conceptual understanding. The diverse application of these learning models also allows students to develop critical thinking skills, creativity, and problem-solving abilities in a more concrete context, as well as deepen their understanding of the material being taught. Essentially, by utilizing these models, learning can be tailored to the individual needs of students, creating a more effective and enjoyable learning environment.

Learning theories used to reinforce students' understanding of concepts

To strengthen students' conceptual understanding, the application of relevant learning theories is important in creating a learning experience that has a significant impact. Learning theories provide a solid foundation for designing appropriate learning strategies and methods based on

students' needs. This section includes diagrams and descriptions of how learning theories are effectively applied in the context of education and how these theories influence students' conceptual understanding.

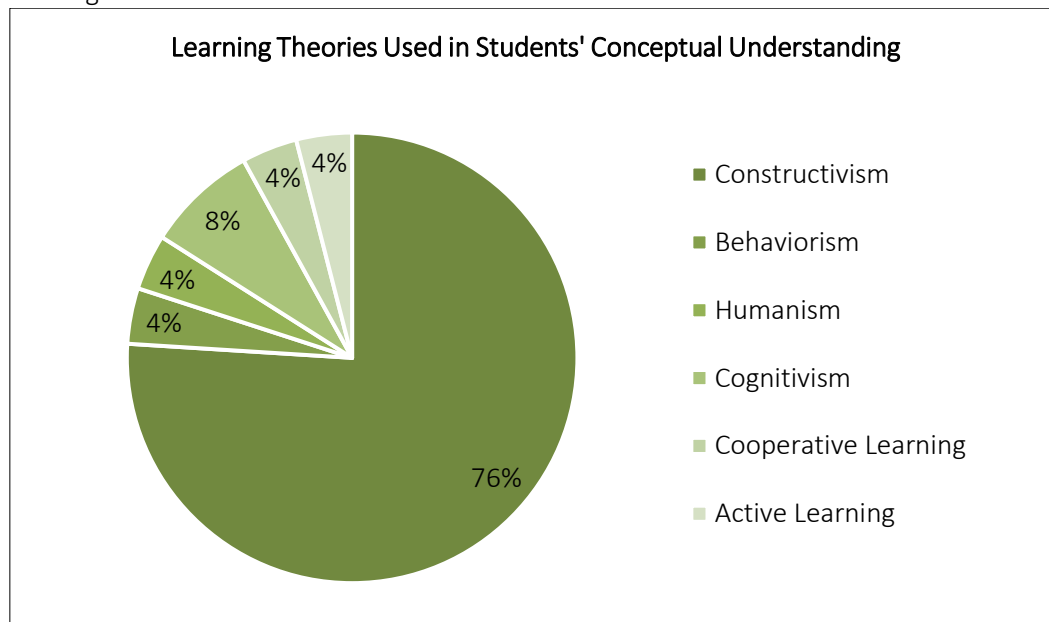


Figure 6. Learning Theories Used in Students' Conceptual Understanding

76% of conceptual understanding focuses on the application of constructivism theory. Constructivism is a learning theory that broadly describes how individuals acquire knowledge by building their own deep understanding of learning through experience and reflection. This approach emphasizes the importance of student-centered learning, where students are encouraged to explore, ask questions, and derive deep meaning from their own experiences (Oanh & Nhung, 2022). Conceptual understanding based on constructivism is a pedagogical approach that emphasizes the active role of students in building their own understanding and knowledge through experience and interaction. In principle, this approach is rooted in constructivist epistemology, which states that learning is a change in learning that involves the involvement of learners in interpreting the information received. Constructivism shifts the focus from the traditional teacher-centered paradigm to learner-centered learning, which encourages learners to actively engage with the material to construct their own conceptual frameworks.

There is an 8% understanding of concepts implemented in cognitive learning theory. This approach allows students to balance their knowledge with the situation, which improves their ability to understand the material presented. Conceptual understanding based on cognitive learning is important in education because this learning encourages students to explore their knowledge in a complex manner. Cognitive learning theory emphasizes the importance of mental processes in understanding concepts so that learners achieve optimal learning outcomes.

4% of conceptual understanding is identified as focusing on behaviorist theory. Behaviorism states that learning is a direct result of stimulus-response dynamics, where specific stimuli elicit observable responses in learners' behavior. Rahmah & Aly, (2023). In its application, although behaviorism offers a structured and systematic framework for understanding learning through directly observable actions, there is criticism that this approach may overlook the cognitive processes of learners involved in learning.

There is 4% of conceptual understanding implemented in humanistic theory. Conceptual

understanding based on humanism emphasizes basic human values and builds individual morality. This perspective is certainly important in facing the crisis of modern social dynamics developing among society. In humanism, students are encouraged to build their individual value frameworks and prioritize human dignity and responsibility. Humanism plays a role in guiding students in the fields of education and ethics in overcoming problems in social life.

There is 4% of conceptual understanding also focuses on cooperative learning. Conceptual understanding based on cooperative learning is an effective pedagogical approach because it enhances students' insights through collaboration and engagement between educators and students. This enables students to build comprehensive knowledge, allowing them to deeply understand the concepts of the material presented.

There is 4% of conceptual understanding identified in active learning theory. Conceptual learning based on active learning plays an important role in improving students' understanding and application of knowledge. Active learning strategies involve students being directly active in the learning process, even encouraging the development of broader cognitive skills. This approach also motivates students to think critically and solve problems, which is undoubtedly important in various academic disciplines, such as mathematics or economics. Despite the significant impact of active learning on learning, some argue that traditional methods still have value, especially in acquiring basic knowledge. However, comprehensive and complex active learning strategies play an important role in improving student learning outcomes.

In essence, the identified learning theories play an important role in strengthening students' conceptual understanding. Through the application of relevant learning theories, it is hoped that an optimal learning environment can be created to support the development of students' skills.

CONCLUSION

Based on the results of the literature review, it can be concluded that the rationale for implementing the *GASING* method is that its primary focus is on creating enjoyable and interactive learning experiences, whether between students and their peers or between students and educators. This approach is believed to enhance learning outcomes. However, while the *GASING* method is predominantly used in mathematics education, it is not limited to this field and could also be applied to the understanding of economic concepts. This is based on the principle that the *GASING* method has three stages of learning: concrete, abstract, and conceptual. Students are not only expected to listen to the material presented but are also guided to apply the learning to real-life situations in their social environment, whether at home, school, or within the community. The material presented initially involves the teacher contextualizing the material with real objects or tangible items. In the next stage, the understanding of these concrete objects is developed into abstract concepts or written descriptions of the topic/material being taught. In the final stage, students are reminded of the material and then asked to answer questions about it accurately. This is why the *GASING* method can be applied in economics education.

The dominant theory used in the *GASING* method is constructivist learning theory. This is based on the application of constructivism, which emphasizes interactive learning processes where students can build their own understanding and knowledge through various experiences and reflections in learning, while educators can creatively make the learning environment easy, enjoyable, and fun, so that students do not become bored and their enthusiasm for learning increases. The context of constructivism theory is also based on the belief that learning is an active process integrated into building knowledge, not merely acquiring knowledge, but rather enhancing it. Therefore, constructivism is the reason why this theory is applied in various educational contexts,

making it widely used in learning through the *GASING* method. The effectiveness of the *GASING* method is most commonly applied in mathematics or exact sciences, while its application in the humanities is still limited. This is because the humanities tend to have conceptual material, and their concepts are considered difficult to visualize, such as ideas in philosophy. However, it is not impossible for creative educators to collaborate and apply the *GASING* method using a suitable learning model in the context of the humanities.

Conceptual understanding can be enhanced through cooperative learning, discovery learning, flipped classroom, problem-based learning, active learning, and experiment-based learning. However, the most dominant method based on literature studies is problem-based learning.

BIBLIOGRAPHY

- Andriani, W. (2022). Penggunaan metode tinjauan literatur sistematis dalam penelitian sosiologi. *Jurnal PTK dan Pendidikan*, 7(2). <https://doi.org/10.18592/ptk.v7i2.5632>
- Asarta, C. J., & Butters, R. B. (2015). Economic Education. *International Encyclopedia of the Social & Behavioral Sciences*. 21-25. <https://doi.org/10.1016/B978-0-08-097086-8.71060-9>
- Astuti, S. P., & Wiyanti, E. (2024). Metode GASING dapat meningkatkan literasi numerasi siswa. *Jurnal Insan Pedulu Pendidikan (JIPENDIK)*. 2(1). 3031-7231. <https://ejournal.lppinpest.org/index.php/jipendik>
- Damopolii, J.K., Rorimpandey, W., & Ester, K., (2024). Penggunaan metode GASING dalam meningkatkan hasil belajar matematika pada operasi perkalian untuk siswa kelas III di SDN Inpres 6/84 Walehunian Sagerat. *Jurnal Ilmiah Wahana Pendidikan*, 10(3), 1042-1052. <https://doi.org/10.5281/ZENODO.10851212>
- Diah, R., & Siregar, N. (2023). Pengaruh Model pembelajaran TGT (Teams Games Tournament) yang dimodifikasi dengan metode GASING terhadap hasil belajar matematika siswa. *EDUKASIA: Jurnal Pendidikan dan Pembelajaran*, 4(2), 1033–1042. <https://doi.org/10.62775/edukasia.v4i2.386>
- Durán-Sandoval, D., & Uleri, F. (2024). Definition of Economics in Retrospective: Two Epistemological Tensions That Explain the Change of the Study Object in Economics. *Philosophies*. 9(1). <https://www.scopus.com/pages/publications/85187284448>
- Gou, M. F. T., Aje, A. U., & Seto, S. B. (2024). Metode GASING dalam pendidikan matematika untuk meningkatkan minat dan hasil belajar siswa. *JUPIKA: Jurnal Pendidikan Matematika Universitas Flores*, 7(2), 119-127. <https://doi.org/10.37478/jupika.v7i2.4624>
- Gultom, A. A., & Usman, K. (2024). Efektivitas metode pembelajaran GASING terhadap hasil belajar matematika siswa kelas VI di SDN 173420 Pollung. *Dharma Acariya Nusantara: Jurnal Pendidikan, Bahasa, dan Budaya*, 2(2), 232–238. <https://doi.org/10.47861/jdan.v2i2.1244>
- Gunawan, I., Sukmana, N., Rahmawati, D., & Pramiasih, E. E. (2021). Pelatihan mengajar bilangan pecahan dengan metode matematika GASING bagi guru pendidikan dasar di sekolah Muammadiyah Secabang Cilawu Garut. 3(2), 99- 107.
- Hidayati, N., Widiyanto, J., & Wahyuni, S. (2024). Meningkatkan hasil belajar matematika pada operasi perkalian di kelas IVB SDN 01 Nambangan LOR. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 9(3), 223-235. <https://doi.org/10.23969/jp.v9i3.18146>
- Ikbal, M. S., Kamsinah, Dani, A. U., & S, Nurwahidah. (2021). The influence of the cooperative script model using the GASING method assisted by couple card media on concept understanding. *Jurnal Ilmiah Pendidikan Fisika*, 5(3), 424-429. <https://doi.org/10.20527/jipf.v5i3.3927>
- Juandi, D. (2021). Heterogeneity of problem-based learning outcomes for improving mathematical competence: A systematic literature review. *Journal of Physics: Conference Series*, 1722.

- <https://doi.org/10.1088/1742-6596/1722/1/012108>
- Kusuma, M. W. K., Jampel, I. N., & Bayu, G. W. (2019). Pengaruh metode pembelajaran matematika GASING terhadap hasil belajar matematika. *Jurnal Pedagogi dan Pembelajaran*, 1(1), 37. <https://doi.org/10.23887/jp2.v1i1.19330>
- Latifatunnisa, A., & Kurniawan, A. (2024). Comparison between GASING and conventional methods on mathematics learning outcomes in elementary school. *El Midad: Jurnal Jurusan PGMI*, 16(1), 87-104. <http://journal.uinmataram.ac.id/index.php/elmidad>
- Lestari, O. R., & Hardini, A. T. A. (2022). Keefektifan Metode Matematika GASING dalam Meningkatkan Kemampuan Pemahaman Konsep Matematis Perkalian Dua Digit untuk Siswa Kelas VI SD. *Jurnal Kewarganegaraan*. 6(2).
- Mubarok, A. (2022). Systematic literature review (SLR) sebagai metode penelitian: Mengulas topik dengan fokus pada pertanyaan tunggal. *Jurnal Penelitian dan Pengembangan*, 15(2), 123-135. <https://doi.org/10.1234/jurnal.v15i2.5678>
- Napitu, P., Marbun, Y. M., Purba, Y. O. (2024). Pengaruh metode pembelajaran GASING terhadap kemampuan pemecahan masalah matematika siswa pada materi SPLDV untuk kelas VIII di SMP negeri 2 Siantar. *INNOVATIVE: Journal Of Social Science Research*, 4(1), 2203-2215.
- Olier, J. S., Barakova, E., Regazzoni, C., & Rauterberg, M. (2017). Re-framing the characteristics of concepts and their relation to learning and cognition in artificial agents. *Cognitive Systems Research*, 44, 50–68. <https://doi.org/10.1016/j.cogsys.2017.03.005>
- Pagarra, H., Syamsuddin, A. F., & Annisa, N. (2024). Penerapan metode GASING dalam meningkatkan hasil belajar matematika siswa kelas IV Sekolah Dasar. *Jurnal Lempu*, 1(24).1-9. <https://journal.unm.ac.id/index.php/lempu>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). Pernyataan PRISMA 2020: Pedoman terbaru untuk pelaporan tinjauan sistematis. *BMJ*, n71. <https://doi.org/10.1136/bmj.n71>
- Prasetyo, E., Jatmiko, B., & Jufriansah, A. (2020). Literature study of understanding the physical concept of straight motion materials using the GASING method. *Indonesian Review of Physics (IRiP)*, 3(2), 40-46. <https://doi.org/10.12928/irip.v3i2.2236>
- Rahayu, N. A., Manuel, G., & Kossay, V. (2024). Penerapan Metode GASING terhadap hasil belajar siswa pada konsep perkalian. *PEDAGOG Jurnal Ilmiah*, 2(2), 31–38. <https://doi.org/10.71387/pji.v2i2.92>
- Rosmawati, R., & Sritresna, T. (2021). Kemampuan pemahaman konsep matematika dilihat dari kepercayaan diri siswa dalam materi aljabar menggunakan pembelajaran daring. *Jurnal Pendidikan Matematika*, 1(2).
- Rusliadi & Azhar A. (2022). Implementasi metode GASING terhadap kemampuan konsep fisika siswa di SMAN 1 LAKUDO. *Jurnal Riset Rumpun Matematika dan Ilmu Pengetahuan Alam*, 1(1) 5-11. <https://doi.org/10.55606/jurrimipa.v1i1.110>
- Saputra, B., Simorangkir, V., Habibah, G., Chan, F., & Noviyanti, S. (2024). Konsep dasar ilmu sosial di sekolah dasar. *Ainara Journal (Jurnal Penelitian dan Pelayanan Masyarakat dalam Pendidikan)*, 5(1), 50–56. <https://doi.org/10.54371/ainj.v5i1.328>
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104(), 333–339. <https://doi.org/10.1016/j.jbusres.2019.0>
- Soylu, F. (2016). An Embodied Approach to Understanding: Making Sense of the World Through Simulated Bodily Activity. *Frontiers in Psychology*, 7. <https://doi.org/10.3389/fpsyg.2016.01914>

- Suparyono, E. I., & Paling, S. (2024). Peningkatan keterampilan perkalian pada siswa kelas tiga di Sekolah Dasar Koinonia Wamena melalui penggunaan metode GASING dalam pembelajaran matematika. *Jurnal Ilmiah Pedagog*, 2(1), 17–25. <https://doi.org/10.71387/pji.v2i1.59>
- Wang, S. (2021). The application of humanistic teaching methods in english teaching. *Open Access Library Journal*, 8(8), 1-9. <http://doi.org/10.4236/OALIB.1107650> Yuliani, N. P., Antarani, N. W. A., Wulandari, P. S., Saspanya, K. D., Prayoga, I.
- W. E. A., Yasa, I. M. A. Y., & Werang, B. R. (2024). Effectiveness of applying the GASING method in multiplication of two-digit numbers in elementary school. *Frontiers in Journal of Applied Science*, 3(7),