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Integration of the Gasing (Easy, Fun, and Enjoyable) Method with the Philosophical Values of Science in Primary Education

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ABSTRACT

The This study examines the GASING (Easy, Fun, and Enjoyable) method in mathematics education through the lens of the philosophy of science, which encompasses three fundamental dimensions: ontology, epistemology, and axiology. The research addresses four key questions: (1) What is the nature of mathematics learning through the GASING method from an ontological perspective? (2) How is the process of knowledge construction within the GASING method explained through an epistemological framework? (3) What axiological values are embedded in the implementation of the GASING method? and (4) How does the GASING approach align with the fundamental principles of the philosophy of science in the context of mathematics education? Drawing upon a literature review of 14 scientific articles, the findings reveal that the GASING method develops understanding progressively from concrete to abstract, forming a strong ontological foundation. It promotes active knowledge construction through meaningful learning experiences as an epistemological process, and it embodies key axiological values such as perseverance, collaboration, and enthusiasm for learning. Furthermore, GASING emerges as a pedagogical approach that holistically integrates ontological, epistemological, and axiological dimensions, thereby reflecting the principles of the philosophy of science. The study contributes to the field by positioning the GASING method not merely as a pedagogical strategy, but as a comprehensive scientific framework for mathematics learning. This integration underscores its potential to enhance conceptual understanding and character development in primary mathematics education.

Keywords: *Islamic Education Values, Role of Islamic Boarding Schools, Quality Islamic Education*

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INTRODUCTION

Is Mathematics learning has become a primary focus in education due to its crucial role in developing logical and systematic thinking in students. However, mathematics lessons often face obstacles in the form of students' poor understanding of basic concepts and the perception that mathematics is a difficult and intimidating subject (Suryadi, 2019). This situation has sparked the emergence of various innovative approaches, one of which is the Gasing method developed by Yohanes Surya.

The Gasing (Easy, Fun, and Enjoyable) method was developed as an alternative mathematics learning strategy that prioritizes easy understanding of concepts, along with a pleasant learning atmosphere that does not put pressure on students (Surya & Putri, 2017). This approach uses gradual learning stages from concrete to abstract, with

a pace adjusted to each child's abilities. The Gasing method has been implemented in various regions in Indonesia and has shown results.which is significant in improving the mathematics learning achievements of elementary school students.

Although the Gasing method has proven to be practically effective, a more in-depth analysis is needed to assess its strengths and weaknesses from a philosophical perspective. In this regard, the philosophy of science serves as an important tool for examining the nature, validity, and rationality of the Gasing method as a scientific approach in education. Chalmers (2013) states that the philosophy of science provides a framework for evaluating the process of knowledge construction and validation, including in pedagogical contexts.

A philosophical study of the Gasing method can be focused on three main components: ontology, epistemology, and axiology. The ontological aspect explores the nature of reality constructed in mathematics learning through the Gasing method, such as how students understand numbers, patterns, and mathematical operations concretely and logically. Meanwhile, the epistemological dimension explores how mathematical knowledge is developed, conveyed, and validated in the learning process.

Epistemologically, the Gasing method provides an active learning experience, where students are central to the knowledge construction process. This approach aligns with Piaget's constructivism theory, which states that children construct their own understanding through interaction with their environment (Slavin, 2020). This method places thinking as a key element, ensuring that conceptual understanding is not merely rote but based on scientifically verifiable reasoning.

Furthermore, from an axiological perspective, the Gasing method contributes to humanistic learning values. By prioritizing student enjoyment and active participation, this method aligns with the principles of humanizing education. This thinking aligns with Freire's (1970) notion that education should be liberating, not oppressive or coercive. Therefore, the Gasing method can be seen as an approach that is not only cognitively effective but also ethically sound in a pedagogical context.

Through a philosophical approach, the Gasing method is positioned not merely as a technical learning strategy but also as a reflection of the epistemological perspectives and fundamental values underlying education. Therefore, this study is expected to broaden understanding of how a learning method can have a strong philosophical foundation and be aligned with the demands of the times.

Moreover, understanding the Gasing method from a philosophical perspective also contributes to the development of more contextual and adaptive theories of mathematics learning. This is important because each method needs to be tested not only empiricallyempirically, but also through an assessment of its scientific validity. A philosophical approach allows for an assessment of whether a method aligns with basic scientific principles.

By examining the Gasing method through the lens of the philosophy of science, this research not only examines its practical effectiveness but also seeks to bridge the gap between learning practices and philosophical reflection. The ultimate goal is to ensure that mathematics education is not merely a procedural activity, but rather a scientific endeavor that reflects the integrity of knowledge and human values. Thus, this research is expected toenrich academic discourse and educational practices in a comprehensive and in-depth manner.

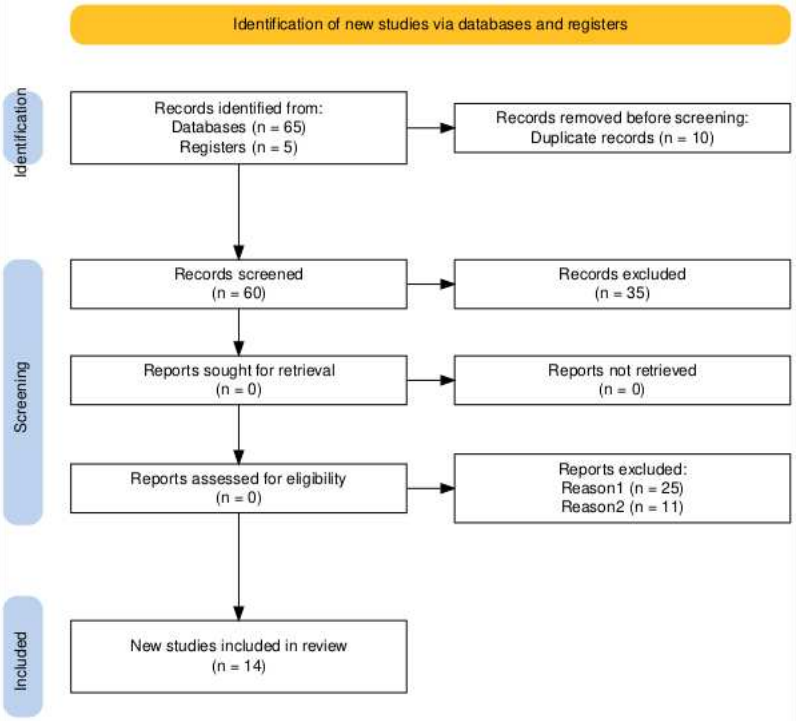
METHOD

This research uses an approach*Systematic Literature Review*(SLR) as a method to explore and synthesize various literature sources related to the Gasing method and its relationship to the study of philosophical values of science. This approach was chosen to ensure a comprehensive and objective analysis of relevant references (Peters et al., 2021). Through the SLR method, this study compiles a comprehensive mapping of the implementation of Gasing-based learning strategies in the context of elementary education, particularly in terms of their relationship to philosophical values of science. The collected literature was analyzed using a thematic approach to obtain valid findings and support the development of practical and theoretical recommendations.

All stages are implemented in accordance with the PRISMA 2020 guidelines (*Preferred Reporting Items for Systematic Reviews and Meta-Analyses*), which provides the latest reporting standards for conducting systematic reviews (Page et al., 2021). These guidelines are used to ensure the literature review process is conducted systematically and transparently, especially in research in the field of education. The literature search strategy was conducted through five major academic databases: Google Scholar, Garuda, Sinta, Scopus, and ERIC. During the search process, a combination of keywords was used that reflected the research focus, such as "Gasing Method," "Mathematics Education," "Deep Learning in Education," "AI and Pedagogy," and "Educational Technology." The search technique also applied Boolean operators such as "Gasing" AND "Philosophy of Science" OR "AI" AND "mathematics education" to filter suitable publications. The selected articles were limited to publication years 2020 to 2025, and only included English and Indonesian documents that had undergone the review process.*peer review*. On the other hand, excluded articles include publications that are not*peer-reviewed*, studies that only discuss the technical aspects of AI without educational relevance, and articles that are not available in full versions.

The selection process began with identifying a total of 823 articles. After removing 140 duplicate articles, 720 articles were screened based on their titles and abstracts. Then, 182 articles were selected for full review. Of these, 14 articles met the inclusion criteria and were deemed relevant for further in-depth analysis. All stages are visualized in a PRISMA flowchart to demonstrate transparency in the selection process.

Figure 01.*Flowchart* Prisma



RESULTSAND DISCUSSION

To understand the relationship between approaches *Top*and the principles of philosophy of science in the context of mathematics learning, a systematic and relevant literature review is needed. Therefore, this study examines 14 scientific articles that directly or indirectly discuss the relationship between ontological, epistemological, and axiological aspects in the philosophy of science and educational practice. These articles not only discuss the basic concepts of philosophy in education but also provide perspectives that deepen understanding of how methods*Top*can be studied, implemented, and developed in the context of mathematics education philosophically and comprehensively. This study provides a significant foundation for examining the theoretical and applicative contributions of the application of the method.*Top*which is based on scientific thinking and educational ethics. A total of 14 articles discussing the implementation of learning using the GASING method and its relationship to the values of the philosophy of science in education have been compiled and presented systematically in the following table as a basis for in-depth analysis.

Table 01. Article Synthesis

No	Title	Writer	Objective	Research methods	Research result	Relevance to the Topic
1	Education in a Philosophical Perspecti	Inayati, Queen Wardarita, Pratika Ayuningtya	Examining the role of philosophy in education through three	Literature review	The philosophy of education forms the basis of	Provides a philosophical basis for the GASING

	ve	s	aspects: ontology, epistemology, axiology		scientific and pedagogical thinking.	method as a systematic educational approach.
2	Modern Philosophy: Ontological, Epistemological, and Axiological Aspects	Fatkhul Mubin	Explaining the relationship between modern philosophy and education	Literature review	The three aspects of philosophy play a role in shaping the concept of modern education.	Shows how the GASING approach can be examined philosophically
3	Ontology, Epistemology and Axiology of Philosophy of Education	Luthfiyah & Abdul Khobir	Explaining the philosophical framework of education in Islam	Library research	Educational philosophy helps shape personality and critical thinking	Relevant in forming GASING learning values and methods which are rooted in critical thinking and values
4	Ontology, Epistemology, Axiology in Character Education	Elfira Rahmadani et al.	Examining the philosophical foundations of character education	Descriptive qualitative	Philosophy of science helps shape character values through education	Can strengthen the axiology of the GASING method in forming positive attitudes in students
5	A Critical Review of the Ontology of Science from the Perspective of Modern	Ace Nurasa et al.	Criticizing the concept of ontology in modern science	Literature review	Ontology is important for determining the objects and boundaries of science.	Relevant to assess the validity of the GASING approach from the nature of science

	Science					
6	The Role of Philosophy of Science in Encouraging the Development of Science	Agus Salim et al.	Examining the contribution of philosophy of science to modern science	Qualitative-descriptive	The philosophy of science provides a framework for scientific and ethical thinking.	Shows that GASING needs to be assessed from a philosophical perspective in order to become a valid scientific method.
7	Systematic Literature Review of the Philosophy of Science in the Development of the Independent Curriculum	Ade E. Agustina et al.	Examining the philosophy of science in the curriculum	SLR	The philosophy of science forms the basis for developing a curriculum based on values and independence.	Relevant to assess the GASING method in the context of a curriculum based on learning freedom
8	Systematic Literature Review: Philosophy of Science and Modern Knowledge	Trisna K. Yusuf et al.	Analyzing the philosophy of science in the modern era	SLR (15 items)	The philosophy of science strengthens the validity, ethics, and direction of scientific development.	GASING can be seen as a transformation of science in basic education with scientific and ethical values.
9	The Role of Philosophy of Science in the	Samsul Pahmi et al.	Analyzing educational philosophy to improve teacher quality	Literature review	Educational philosophy shapes teacher professionalism and	GASING as a method requires philosophical understandi

	Professionalism of Elementary School Teachers				innovation	ng to be applied professionally.
10	Principles of Philosophy of Science in Phonology	Suhaib Al Faruq & Muhammad Sukri	Analyzing phonology based on ontology, epistemology, axiology	Systematic Literature Review	The three principles of philosophy form a framework for thinking across disciplines.	Even though the discussion is linguistic, the philosophical approach model can be adapted for GASING
11	Ontological Aspects of Science	Amri Syafriadi, et al.	Explaining the nature of ontology in science and its application in Islamic education management	Literature Study	Ontology discusses the nature of concrete and abstract existence, as well as its importance in formulating the goals and strategies of Islamic education. Ontology is divided into idealism, materialism, and dualism.	The basis of the Gasing approach as a scientific framework: understanding the nature of the learning object (the existence of numbers, mathematical concepts) before determining the teaching method.
12	Systems Approach in Philosophical Review: Ontology, Axiology, and Epistemo	Erli Yanty Rihana Paramida, Dini Prima Putri, Romlah, Saiful Anwar B	Analyzing the education system through a philosophical review, especially the aspects of ontology, epistemology, and axiology.	Literature Review	The education system is viewed as a dynamic entity. Ontology emphasizes education as a comprehens	The Gasing approach can be analyzed systemically—input components (students), process (Gasing method),

	logy				ive system that shapes the whole person.	output (mathematical competence)—based on an ontological understanding of the education system itself.
13	Education and Elementary Education: A Study of Ontology, Epistemology, and Axiology	Meila Yufrian Devi, Desyandri, Irda Murni	Examining three aspects of philosophy (ontology, epistemology, axiology) in elementary education	Literature Study	Ontology is the study of the conditions of reality; epistemology discusses how to acquire knowledge; and axiology assesses the benefits of knowledge in life. All three are important in developing basic education.	Relevant to the Gasing approach as a basic learning method that emphasizes clarity of structure (ontology), the process of acquiring knowledge (epistemology), and the benefits of learning mathematics (axiology).
14	Ontology, Epistemology, and Axiology of Islamic Boarding School Education in the Modern Era	Abd. Muqit, Shokhibul Mighfar	Explaining the three aspects of philosophy in the context of Islamic boarding school education and its implications in the modern era.	Theoretical Study (Literature)	Ontologically, Islamic boarding school education focuses on human development through Islamic values; epistemologically, it uses reason and	Inspiring that the Gasing approach can be integrated into Islamic value-based education and ethics through the philosophy of science, by emphasizin

					revelation in harmony; and axiologically, it directs learning to form individuals with morals and who are useful.	g the harmony between science, reason, and morals in the mathematics learning process.

In an effort to develop learning approaches such as methodsGASING, foundationThe philosophy of science plays a significant role in providing direction and structured thought patterns. The philosophy of education as the primary foundation can be explained through three important elements: ontology, epistemology, and axiology. A study by Inayati, Wardarita, and Ayuningtyas states that these three elements form the foundation of science and pedagogy in education (2023). In the context of the GASING method, an ontological understanding of mathematical objects, such as numbers and operations, is essential so that students not only memorize but are able to understand the meaning of the concepts presented. This is in line with Ruseffendi (2006) who explained that "mathematical concepts must not only be understood as symbols, but must also be instilled through meaningful concrete experiences."

Then, the study is done by Fatkhul MubinLuthfiyah and Khobir also reinforce the view that these three dimensions of philosophy have influenced the formation of modern education systems and Islamic value-based education. In the GASING method, the epistemological aspect is reflected in the way students construct knowledge logically and gradually. This aligns with Piaget's (1970) theory, which states that "children construct their knowledge through a process of assimilation and accommodation based on existing schemas." In this regard, GASING does not simply present information, but helps students construct understanding through directed learning experiences.

From an axiological perspective, the GASING method seeks to foster positive student attitudes, such as patience, thoroughness, and self-confidence when solving problems. This perspective is also reflected in the study by Elfira Rahmadani et al., which states that the philosophy of science plays a crucial role in shaping students' character values. Strengthening these values is key in basic education. This is in line with Rogers' (1983) view that "education should be centered on the individual, not just on the subject," indicating that the learning process must have a human dimension that fosters character.

Regarding the scientific validity of a method, research by Ace Nurasa et al. and Agus Salim et al. emphasizes that ontological and ethical foundations are crucial for a scientific approach. The philosophy of science forms an ethical framework so that approaches like GASING are not merely technical. This aligns with Popper's (1959) statement that "science must be open to critical examination and have a logical basis," meaning that approaches like GASING also need to be rationally tested to be accepted as valid scientific methods.

A study by Ade E. Agustina and Trisna K. Yusuf et al. shows that integrating the philosophy of science into the context of the Merdeka curriculum and the modern education era is becoming increasingly important. In this regard, the GASING method, which prioritizes active learning and clear thinking stages, is highly suitable. Deep Learning, as an approach that emphasizes the interconnectedness of meaning, reflection, and the development of critical thinking, is a manifestation of modern epistemological philosophy. As stated by Marton and Säljö (1976), "deep learning involves the intention to understand and extract meaning," which emphasizes that learning must lead to in-depth understanding.

From the perspective of teacher professionalism, research by Samsul Pahmi et al. confirms that understanding educational philosophy can encourage teachers to be more reflective and innovative in implementing a method. In practice, the GASING method requires teachers to understand students' thinking patterns and develop systematic learning stages. This aligns with Freire's (1970) notion that "education is a dialogue between teacher and student, in which both learn from each other," demonstrating that GASING is an interactive and dialogical approach.

Suhaib Al Faruq and Muhammad Sukri's study demonstrates that philosophical principles in linguistics can serve as a model for an interdisciplinary approach. This provides an opportunity for GASING to adopt a cross-disciplinary approach to strengthen epistemological aspects. This approach aligns with Gardner's (1983) theory of multiple intelligences, which explains that "children possess various intelligences, including logical-mathematical and linguistic," allowing learning to address students' diverse learning styles.

A study by Amri Syafriadi et al. emphasized that an understanding of ontology is necessary to explain the existence and limitations of a learning object. This aligns with the GASING approach, which uses concrete to abstract stages. This view aligns with Bruner's (1966) representation theory, which states that learning progresses through enactive, iconic, and symbolic stages.

On the other hand, Erli Yanty Rihana Paramida et al. view the education system from a philosophical perspective as a dynamic and holistic structure. GASING can be analyzed as a miniature education system that includes input (students), process (learning through GASING stages), and output (mathematical learning outcomes). This thinking is in accordance with Bertalanffy's (1968) systems theory, which states that "education is an open system consisting of interrelated and influencing parts."

Meila Yufrian Devi et al.'s research shows that the application of ontological, epistemological, and axiological principles must be comprehensive in elementary education. This aligns with Tyler's (1949) curriculum principle, which states that "educational planning begins with objectives, learning experiences, and evaluation of outcomes," all three of which are reflected in the steps of the GASING method.

Finally, Abd. Muqit and Shokhibul Mighfar demonstrated that Islamic boarding school education is based on harmonious values between reason, revelation, and morality. The GASING method can also be adapted to the context of Islamic values through a philosophy of science that emphasizes the balance between reason, knowledge, and morality. This is reinforced by Al-Attas' (1991) view that states that "educationis the process of instilling manners in the soul, which includes the integration of knowledge and ethics," so that the GASING method not only educates cognition, but also forms character.

CONCLUSION

The GASING method in mathematics teaching demonstrates a comprehensive philosophical approach. From an ontological perspective, GASING views mathematical concepts as entities that need to be understood gradually, starting from concrete activities to more abstract understanding. This indicates that learning mathematics is not just about formulas or procedures, but rather understanding the essence of mathematical objects. From an epistemological perspective, GASING emphasizes that knowledge is actively constructed by students through a directed and systematic learning process. This process is in accordance with constructivist principles, where students play an active role in constructing knowledge and meaning through real-life engagement.

In terms of axiology, the GASING method contains important educational values, such as perseverance, self-confidence, patience, and the spirit of continuous effort. The learning process is not only focused on the cognitive aspect, but also includes the formation of positive character. Furthermore, the GASING approach is related to the main principles of the philosophy of science, because it covers three important dimensions: ontology (what is the object of learning), epistemology (how the process of knowledge occurs), and axiology (the purpose and value of that knowledge). Thus, the GASING method is not only a teaching strategy, but also an educational approach based on an integrated scientific framework, human-centered, and supports the development of students' full potential.

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