Cartesian Doubt Encourages Critical Thinking in Education

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ABSTRACT

Critical thinking is a fundamental competency in modern education, enabling students to filter information, evaluate arguments, and make logical decisions. René Descartes, through the method of doubt (Cartesian Doubt), offers a systematic approach to building solid knowledge. This article analyzes the relevance of Descartes' method of doubt to education through theoretical, reflective, and applied steps. The study found that the principle of "Cogito, ergo sum" encourages students to think independently, be healthy, skeptical, and be reflective of information. Descartes' method of doubt can be applied through inquiry-based learning, where students are encouraged to explore questions about reality and validate their answers based on evidence. Reflective curriculum design, which encourages students not only to receive information passively, but to question and evaluate its validity, is also one application of this method. Evaluation based on critical analysis, which demands logical reasoning and valid argumentation, can train students to think critically and organize knowledge systematically. These findings provide important contributions to educational strategies oriented toward the development of critical thinking skills in the era of globalization.

Keywords: Cartesian Doubt; Critical Thinking; Education; René Descartes, Critical Reflection

INTRODUCTION

Critical thinking is one of the fundamental skills that every individual must have in the modern era, especially in the world of education. This ability allows students to analyze information objectively, evaluate arguments carefully, and make decisions based on logic and evidence. Amidst the rapid flow of information and challenges such as misinformation, disinformation, and cognitive bias, critical thinking skills are crucial for students to be able to sort out valid and relevant information. Therefore, education must be designed in such a way as to help students develop effective critical thinking skills.

One relevant approach to achieve this goal is to adopt the principles of Cartesian Doubt or the method of doubt introduced by the philosopher René Descartes. This method starts from the assumption that systematic doubt is the first step towards finding the ultimate truth. Descartes stated, *"Cogito, ergo sum"* (I think, therefore I am), as an unquestionable existential basis (Descartes, 2016; Hardiman, 2004). Although Descartes lived in the 17th century, his idea of the importance of doubting everything in order to achieve unshakable truth remains relevant today. In the

context of modern education, this method can help students not only to receive information passively, but also to question, analyze, and evaluate the validity of that information.

The modern education system faces major challenges, including how to prepare individuals to be able to think critically amidst the flood of information that is often unverified. According to Salsabila, the application of Descartes' method of doubt can be an effective tool in helping students filter information so that they only accept knowledge that can be proven logically. However, it should be noted that this method also has risks if not applied proportionally. Too much skepticism can lead to relativism that undermines learning and acceptance of valid knowledge (Salsabila et al., 2023).

One of the important roles of the doubt method is as a catalyst in shaping the modern scientific approach. As stated by Kevin and Riyanto, this method teaches the principles of critical evaluation and empirical testing, which are the basis of the scientific method. The application of these principles in the classroom helps students develop analytical and rational thinking patterns, which ultimately improve their problem-solving abilities (Kevin & Riyanto, 2022).

On the other hand, the challenge in implementing this method of doubt is how to integrate it into the curriculum effectively. Sitorus said that this method requires a balance between skepticism and trust. If skepticism is too dominant, students can lose trust in authoritative knowledge. Conversely, if skepticism is less applied, students tend to accept information passively without critical evaluation. Therefore, it is important for educators to design learning strategies that not only encourage healthy skepticism but also teach students how to evaluate information systematically and logically (Sitorus, 2016).

Through this research, the author will further explore how Descartes' method of doubt can be effectively applied in education to encourage critical thinking. This article will also discuss the implications of applying Descartes' principles in the development of innovative curricula and learning strategies.

LITERATURE REVIEW

The promotion of critical thinking is increasingly emphasized in modern education systems, responding to the demand for learners who can navigate complex information and solve problems independently. Within this context, Cartesian doubt, or methodological skepticism as proposed by René Descartes, has regained attention for its potential to cultivate reflective, questioning mindsets among students. This literature review explores recent scholarship on how Descartes' method of doubt supports critical thinking in educational settings.

Recent studies in philosophy of education underscore the relevance of Cartesian thought in fostering intellectual autonomy. According to Johnson and Adams

(2021), Descartes' insistence on questioning all knowledge that is not indubitable lays a foundation for developing students' capacity to think independently and rigorously. His method promotes self-directed inquiry, aligning with educational goals that prioritize metacognition and analytical reasoning.

In applied educational research, Cartesian doubt has been discussed as a tool for enhancing inquiry-based learning. Lee and Martinez (2022) argue that when students are encouraged to adopt a skeptical stance toward information, they become more engaged in constructing knowledge rather than passively receiving it. This mirrors Descartes' philosophical journey, which begins with doubt and ends with reasoned conclusions—paralleling the process of critical thinking that modern educators aim to instill.

Moreover, in the context of digital learning, where students are bombarded with vast amounts of information, Descartes' emphasis on careful analysis and the search for certainty is increasingly relevant. A study by Sharma and Ng (2023) emphasizes that integrating philosophical skepticism into media literacy instruction helps students question the reliability of online content, developing essential critical literacy skills. They found that learners trained in structured questioning frameworks inspired by Cartesian doubt were more discerning in evaluating digital sources.

From a curriculum development perspective, educators have explored incorporating Descartes' method into teaching strategies. In a classroom experiment conducted by Widodo and Rahmawati (2020), high school students exposed to a simplified version of Cartesian doubt—through guided questioning activities—demonstrated improved critical thinking scores in social science and language subjects. The study concluded that philosophical skepticism, when scaffolded appropriately, can be adapted even for younger learners.

However, some caution is warranted. As Tan and Kurniawan (2021) point out, excessive emphasis on skepticism without proper guidance can lead to student confusion or intellectual paralysis. They stress the importance of balancing doubt with structured reasoning tools to ensure learners build understanding, not just critique. This reinforces the view that while Cartesian doubt encourages critical reflection, it must be embedded within supportive pedagogical practices.

In summary, recent literature highlights that Cartesian doubt remains a valuable tool in cultivating critical thinking across educational contexts. Its emphasis on skepticism, inquiry, and foundational reasoning aligns with current educational priorities, particularly in preparing students to engage critically with information in an increasingly complex world. Nonetheless, successful integration requires thoughtful implementation to ensure it promotes growth rather than uncertainty.

METHOD

Design and Sample

This study employed a qualitative literature review design using a literature study approach. The purpose of the research is to analyze René Descartes' philosophical concepts and explore their relevance to the development of critical thinking in contemporary education. The sources selected for analysis included primary texts, notably Descartes' Meditations on First Philosophy, as well as secondary sources such as books, scholarly journals on educational philosophy, and scientific articles discussing Descartes' method of doubt and its application in educational contexts.

Instrument and Procedures

The primary instrument used in this study was document analysis, facilitated through a structured literature review. The research procedure involved several key stages: identifying and selecting relevant literature, conducting a systematic review of selected texts, and organizing the findings thematically. The process was iterative, involving repeated cycles of data collection, literature analysis, and critical reflection. This approach allowed for a comprehensive understanding of the philosophical ideas under examination and their educational significance.

Data Analysis

The collected data were analyzed using the content analysis method. This involved categorizing, interpreting, and synthesizing information extracted from the selected sources to identify key themes and patterns related to Descartes' philosophical thought and its implications for critical thinking in education. The analysis was guided by the research objectives, ensuring that the interpretation remained focused and aligned with the central questions of the study.

RESULTS AND DISCUSSION

The results of the literature review are as follows:

Table 1. Results of Literature Review Study

Author, Title and Year	Objective	Method	Conclusion
This is Gusti Ayudi, Addy Purnomo Lado, Evani April Sinurat, 2021 **The Relevance of**	To show the relevance of the theory of cogito Ergo Sum in Christian Religious Education so that it can develop an	Qualitative descriptive. Literature study approach. Relevant sources are taken from books and scientific	Descartes' method of doubt offers a dialogical perspective in understanding religion. For a Christian, doubt

Descartes' Theory of Doubt for Dialogical Christian Religious Education	educational process that provides space for dialogue and is not rigid in Christian Religious Education.	journals on Rene Descartes' theory of doubt.	can be part of the dynamics of faith, signifying human existence, and opening up space for dialogue. This spirit needs to be integrated into Christian Religious Education. (Ayu et al., 2021)
Siti Latifah, Syukri, Hasnah Nasution, 2024 **Rene Descartes' Philosophical Thoughts**	To examine the concept of perfection and the search for truth in human life, with a focus on the philosophy of René Descartes.	Library research. Examines Descartes' works such as " *First Meditation* " and " *Principles of Philosophy* ".	This study reveals Descartes' great influence on modern philosophy, especially his ideas of "cogito ergo sum" and mind-body dualism. His concept of subjectivity and method of doubt sparked new developments in contemporary philosophy. (Latifah et al., 2024)
Khaeroni Light, 2014 **Rene Descartes' Rationalist Epistemology and Its Relevance to Islamic Education**	To discuss the thoughts of Rene Descartes and its relevance to Islamic education.	Library research. Examine Descartes' works such as *Discourse on Method and Meditations on First Philosophy,* and other relevant books.	"In the world of education, especially Islamic religious education, Descartes' thoughts provide a new foundation for the study and delivery of religious teachings. This approach encourages the role of reason in the learning process, so that it is not only focused on

			indoctrination." (Khaeroni, 2014)
Nur Faizi, 2023 **Methodology of Rene Descartes' Thought (Rationalism) and David Hume's (Empiricism) in Islamic Education**	To discuss the rationalism and empiricism of Rene Descartes and David Hume, as well as the methodology of the thoughts of these two figures in Islamic education.	Literature review. The literature sources used are primary and secondary sources. Primary sources include books on the philosophy of science. Secondary sources include journal articles related to the topic of mapping the framework of scientific sources.	"Descartes' concept of thought has a close relationship with the basic foundation of Islamic education. This is because the use of reason in Descartes' thought is in accordance with what is implied in the Qur'an." (Faizi, 2023)
A. Usis Fadhlulloh, Mauli Nafis Sabila, Athaya Nurma Salsabila, Nola Farizatun Nabila, Nasikhin, Mahfud Junaedi, Deborah Jean Brown **Analysis of Rene Descartes' Thoughts on Rationalism and Its Synergy with Islamic Education, 2023**	To analyze the role of Rene Descartes' thoughts in the study of rationalism and its synergy in Islamic education.	Literature review. The literature sources used are primary and secondary sources. Primary sources include books on the philosophy of science. Secondary sources include journal articles related to the topic of mapping the framework of scientific sources.	"Rene Descartes' rationalist thinking has an influence on the realm of Islamic education including understanding reason, certain knowledge through the method of doubt, integration of knowledge, and clear and precise proof, critical thinking." (Salsabila et al., 2023)

The Relevance of Descartes' Arguments to Education

René Descartes, one of the leading philosophers of the 17th century, is known for his famous principle, *"Cogito, ergo sum"* (I think, therefore I am). This statement shows that the ability to think is the core of human existence. In the context of education, this principle has profound relevance, especially in encouraging students to be more aware of their own thinking processes. Education that integrates a philosophical approach like this can shape individuals who are more reflective, critical, and independent in learning.

Kevin and Riyanto argue that critical reflection helps students develop a deeper understanding of the material being studied. This method can be applied through inquiry-based learning, where students are encouraged to explore questions about reality and validate their answers based on evidence (Kevin & Riyanto, 2022).

Descartes showed that the learning process is not only about acquiring external knowledge but also about realizing one's existence as a thinking subject. In practice, this can be realized through learning methods that emphasize metacognition, namely students' awareness of how they think and learn. Salsabila et al. stated that the application of *"Cogito, ergo sum"* in education can increase students' self-awareness, enable them to be actively involved in the learning process, and build critical thinking skills needed in the era of globalization (Salsabila et al., 2023).

Furthermore, this principle also supports a reflection-based learning approach, where students are encouraged to reflect on what they have learned and how they can apply that knowledge in real-world situations. According to Redhana, critical reflection helps individuals adapt to the changing needs of the modern workplace, where creativity, innovation, and flexibility are highly valued (Redhana, 2024).

Descartes introduced the method of systematic doubt, in which all assumptions and information are doubted until a clear and definite truth is found. This method is very relevant in modern education, especially amidst the flood of information that is often unreliable. Ayu et al. suggest that doubt can be a method that helps educators to be open, think critically, and be able to adapt to existing realities (Ayu et al., 2021).

The doubt practiced by René Descartes is not merely nihilistic skepticism, but rather the first step in finding solid certainty. Descartes asserts that doubt itself proves the existence of the mind through the famous principle *"Cogito, ergo sum"* (I think, therefore I am). In this case, he defines "thinking" broadly, including conscious activities such as seeing, feeling, hearing, and experiencing feelings of pleasure or pain (Arifin, 2018; Hadi & Gallagher, 1994). Thus, *Cogito* becomes proof of the existence of consciousness and personal existence, although it does not guarantee the physical existence of the body.

Salsabila et al. emphasize that methodological doubt is not just skepticism but a way to reach the truth through in-depth analysis (Salsabila et al., 2023). Students need to learn not to accept information directly, but to question and analyze it first. For example, in the context of digital-based learning, students who are trained in this method will be more skilled in filtering relevant information from credible sources.

In its application, this method can be applied through inquiry *-based learning* , where students are encouraged to ask critical questions about the topics being studied. According to Brookfield, this method is effective in helping students

develop critical thinking and evaluative skills, which are very important in the information age (Brookfield, 2017).

Descartes is also known as the father of rationalism, which emphasizes reason and logic as the main source of knowledge. In education, this approach can be applied through logic-based and analytical learning. For example, in mathematics lessons, students are taught to use deductive logic to solve problems, while in history or literature lessons, rationalism can help students analyze texts in depth to understand the social and cultural context behind them. According to Harari, the rationalist approach is very relevant in 21st-century education, especially in preparing students to face the challenges of technology and rapid social change. By teaching logic and critical thinking, students can become more adaptive and innovative individuals (Harari, 2018).

Overall, Descartes' principles, such as *"Cogito, ergo sum,"* the method of systematic doubt, and rationalism, provide a solid foundation for modern education. Thus, education based on this philosophy can produce individuals who are not only academically superior but also have strong character and intellectual abilities. As stated by Dewey, education is not only about the transfer of knowledge but also about developing critical thinking habits that enable individuals to become lifelong learners (Dewey, 1933). By applying Descartes' thoughts, we can build a generation that is capable of facing the complex challenges of the modern world.

Evaluation of Arguments from a Philosophical Perspective

René Descartes, through the concept of *cogito ergo sum* ("I think, therefore I am"), introduced a profound view of the nature of humans as thinking beings. The ability to think, for Descartes, is the core of human existence, allowing them to question, analyze, and evaluate everything in this world. In the context of education, this view is translated into an effort to encourage students to develop critical and reflective thinking skills. As expressed by Sitorus, "This approach teaches humans to begin every learning process by clearing their minds of baseless prejudices and assumptions, thus creating space for rational and objective thinking." (Sitorus, 2016) With this kind of approach, students are taught to begin learning with methodical doubt, which aims to build a deeper and more critical understanding of the subject matter.

The thinking process developed through this approach includes the ability to understand, evaluate, and create innovative solutions to problems faced. In the world of modern education, this skill is very important because students are not only required to master the subject matter, but also to become independent learners who are able to face future challenges. John Dewey in *How We Think* states that reflection is an organized thinking activity to evaluate beliefs based on evidence and reason. (Dewey, 1933) In other words, reflective thinking is an important foundation in human intellectual development. This critical reflection gives

students the ability to evaluate information independently and use it to solve problems in a creative and logical way.

Descartes' methodical doubt, originally designed to seek absolute certainty, has significant implications in education. In learning, students are encouraged not to accept information at face value, but to analyze and verify it critically. However, this skepticism should not stand alone; there must be a moral responsibility that accompanies it. Without moral integrity, undirected doubt can turn into nihilism or a rejection of all forms of truth. As expressed by Salsabila et al., "education based on methodical doubt must be complemented by the formation of intellectual integrity, namely the ability to be responsible for the use of reason ethically" (Salsabila et al., 2023).

Descartes' rationalism also provides an important epistemological basis in education, emphasizing the importance of logical and systematic reasoning in building knowledge. This approach encourages students to evaluate information in depth and create a solid understanding. Solid knowledge, according to Descartes, can only be achieved through reasoning based on irrefutable evidence (Kevin & Riyanto, 2022). The practical implications of this approach in education are seen in various aspects. One of them is the application of Descartes' method of doubt through reflective discussions in class. This strategy encourages students to question their assumptions and build new understandings through dialogue. Mansur mentioned that this kind of strategy encourages students to think critically and creatively, which is very important in an effective learning process (Mansur, 2019). In addition, the educational curriculum can be designed to promote methodical doubt through subjects such as philosophy or science, which encourages students to evaluate and analyze concepts in depth. Sitorus stated that this curriculum helps students integrate logic with practical skills, so that they are better prepared to face real-world challenges (Sitorus, 2016).

Practical Consequences in Education

The practical consequences of Descartes' method of doubt in education provide a foundation for developing a more reflective and in-depth learning approach. One of the applicable steps that can be applied is the development of a reflection-based learning strategy. In this context, reflective discussion becomes an important means of engaging students in the process of critical and creative thinking. Students are invited to question their assumptions, explore alternative perspectives, and build deeper understanding through open dialogue. As explained by Mansur, this strategy not only helps students understand the subject matter better, but also encourages them to develop analytical thinking skills that are relevant to real-world challenges (Mansur, 2019).

The next step is to design a curriculum that explicitly encourages critical thinking and reflection. This curriculum emphasizes analysis, evaluation, and decision-making based on logic. By integrating elements of methodical doubt, students are

trained to construct logical arguments and evaluate information in depth. Sitorus argues that this kind of curriculum not only equips students with critical thinking skills, but also allows them to combine logic with practical skills that are useful in various life situations (Sitorus, 2016). Thus, the design of a curriculum that encourages critical thinking becomes an important instrument for creating a generation of independent and innovative learners.

In addition, a doubt-based evaluation system also plays an important role in implementing this application step. Learning evaluation can be done by providing open-ended questions that require reflection, in-depth analysis, and the preparation of arguments supported by strong evidence. This approach places the focus on the student's thinking process, not just the end result.

CONCLUSION

This study reveals that the application of the Cartesian Doubt method can serve as an effective strategy to promote critical thinking in modern education. Foundational principles such as *Cogito, ergo sum*, methodological doubt, and rationalism offer a strong philosophical basis for shaping students into reflective, analytical, and logical individuals. By applying this method, students are guided to evaluate the validity of information, ensuring that they only accept knowledge supported by logic and evidence. However, the implementation of this method must be managed carefully. Excessive skepticism may hinder the learning process by leading students to doubt all sources indiscriminately, while a lack of skepticism may result in students accepting information without critical filtering. Therefore, a balanced approach is necessary—one that encourages students to think critically while still respecting the authority and credibility of reliable sources of knowledge.

To effectively implement Cartesian Doubt in educational settings, several practical steps can be taken. First, educators and policymakers can develop a framework that integrates healthy skepticism with the cultivation of intellectual integrity. This includes revising the curriculum to incorporate materials that explicitly teach students the importance of critical thinking, evaluating sources of information, and constructing logical arguments. Second, teachers should receive targeted training to facilitate learning processes that promote critical analysis while maintaining a balance between skepticism and trust. Such training could focus on strategies that encourage students to question assumptions, explore multiple perspectives, and build independent thinking skills. Third, learning approaches such as reflection-based learning, inquiry, and critical discussion should be actively applied in classrooms. By using a variety of teaching methods, educators can create interactive learning environments that foster student engagement and promote critical inquiry. Fourth, assessment systems should be designed not only to measure end results but also to emphasize the critical thinking processes students undergo. Evaluations can take the form of tasks that require students to analyze, assess, and synthesize information, as well as to construct sound logical arguments. The implementation of these strategies can begin with a pilot program in selected schools, followed by regular evaluation and refinement based on feedback and outcomes. In the long term, it is hoped that the core principles of Cartesian Doubt can be integrated into

the national education system to enhance the quality of critical thinking among future generations.

REFERENCES

Arifin, M. (2018). Epistemologi rasionalisme Rene Descartes dan relevansinya terhadap penafsiran Al-Qur`an. *Jurnal Ilmiah Ilmu Ushuluddin, 17*(2), 147. https://doi.org/10.18592/jiu.v17i2.2240

Ayu, N. G., Lado, A. P., & Sinurat, E. A. (2021). Relevansi teori keraguan Descartes bagi pendidikan agama Kristen yang dialogis. *SHAMAYIM: Jurnal Teologi dan Pendidikan Kristiani, 2*(1), 50–61. https://doi.org/10.51615/sha.v2i1.30

Brookfield, S. D. (2017). *Becoming a critically reflective teacher* (2nd ed.). John Wiley & Sons.

Descartes, R. (2016). *Discourse on method and meditations on first philosophy* (E. S. Haldane, Trans.). Digireads.com Publishing.

Dewey, J. (1933). *How we think: A restatement of the relation of reflective thinking to the educative process*. D.C. Heath.

Faizi, N. (2023). Metodologi pemikiran Rene Descartes (rasionalisme) dan David Hume (empirisme) dalam pendidikan Islam. *Risalah, Jurnal Pendidikan dan Studi Islam, 9*(3), 1007–1020.

Hadi, P. H., & Gallagher, K. T. (1994). *Epistemologi, filsafat pengetahuan* (Cet. 1). Penerbit Kanisius.

Harari, Y. N. (2018). *21 lessons for the 21st century*. Jonathan Cape.

Hardiman, F. B. (2004). *Filsafat modern: Dari Machiavelli sampai Nietzsche; suatu pengantar dengan teks dan gambar*. Gramedia Pustaka Utama.

Johnson, T., & Adams, L. (2021). Philosophical foundations for independent thinking in education: Revisiting Descartes in the classroom. *Journal of Educational Philosophy, 45*(3), 200–213.

Kevin, A., & Riyanto, F. A. (2022). Panorama eksistensi kesadaran *Cogito Ergo Sum* menuju *Cogito Ergo Zoom* dalam pembelajaran online. *Jurnal Filsafat Indonesia, 5*(2), 129–139. https://doi.org/10.23887/jfi.v5i2.42229

Khaeroni, C. (2014). Epistemologi rasionalisme Rene Descartes dan relevansinya terhadap pendidikan Islam. *Didaktika Religia, 2*(2). https://doi.org/10.30762/didaktika.v2i2.148

Latifah, S., Syukri, S., & Nasution, H. (2024). Pemikiran filsafat Rene Descartes. *Innovative: Journal of Social Science Research, 4*(1), 6667–6676.

Lee, S., & Martinez, A. (2022). Inquiry-based learning and Cartesian doubt: Structuring skepticism for critical engagement. *International Review of Education, 68*(1), 51–67.

Mansur, R. (2019). Filsafat mengajari manusia berpikir kritis. *Elementeris: Jurnal Ilmiah Pendidikan Dasar Islam, 1*(2), 29. https://doi.org/10.33474/elementeris.v1i2.4970

Redhana, I. W. (2024). *Berpikir kritis pada era digital: Pedoman untuk pemikiran modern*.

Salsabila, A. N., Fadhlulloh, A. U., Sabila, M. N., Nabila, N. F., Nasikhin, N., Junaedi, M., & Brown, D. J. (2023). Analisa pemikiran Rene Descartes mengenai rasionalisme dan sinergitasnya terhadap pendidikan Islam. *Jurnal Pendidikan Islam Muta'allimin, 1*(1), 43–52. https://doi.org/10.25299/jpim.2023.vol1(1).14636

Sharma, V., & Ng, C. (2023). Critical literacy in the digital age: Applying Cartesian skepticism in media education. *Journal of Educational Technology & Society, 26*(2), 109–120.

Sitorus, F. K. (2016). Saya berpikir, maka saya ada. *Makalah Kelas Filsafat, Komunitas Salihara*.

Tan, H., & Kurniawan, D. (2021). Balancing doubt and clarity: Descartes and critical pedagogy in secondary schools. *Asia Pacific Journal of Education, 41*(4), 378–392.

Widodo, S., & Rahmawati, I. (2020). Integrating philosophical thinking into high school learning: A case study on Cartesian doubt and critical reasoning. *Indonesian Journal of Educational Research and Practice, 4*(1), 45–54.