

Enhancing Higher-Order Thinking Skills (HOTS) Through Inquiry-Based Learning in Madrasah

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ABSTRACT. Education plays an essential role in improving individuals' knowledge, skills, and problem-solving abilities in both academic and daily life contexts. In the modern educational era, students are expected not only to master knowledge but also to develop Higher-Order Thinking Skills (HOTS), including critical thinking, analytical reasoning, evaluation, and creativity. The implementation of HOTS in Indonesia has become increasingly important due to the relatively low performance of Indonesian students in international assessments such as the Programme for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS). In response to these challenges, the Indonesian government has strengthened educational standards through the implementation of the 2013 Curriculum, which emphasizes HOTS-oriented learning and assessment. According to the revised Bloom's Taxonomy, cognitive skills are categorized into Lower-Order Thinking Skills (LOTS), which include remembering (C1), understanding (C2), and applying (C3), and Higher-Order Thinking Skills (HOTS), which involve analyzing (C4), evaluating (C5), and creating (C6). One of the effective learning approaches to develop HOTS is Inquiry-Based Learning. This learning model encourages students to actively investigate, ask questions, analyze information, solve problems, and construct knowledge independently. Through inquiry-based activities, students are stimulated to think critically, creatively, and systematically during the learning process. This study aims to examine the role of Inquiry-Based Learning in enhancing Higher-Order Thinking Skills among students in Madrasah Ibtidaiyah. The study employs a qualitative descriptive approach through literature review and analysis of relevant educational theories and previous studies. The findings indicate that Inquiry-Based Learning significantly contributes to improving students' critical thinking, problem-solving abilities, learning motivation, creativity, and active participation in classroom activities. In addition, HOTS-oriented learning helps students become more independent, reflective, and capable of applying knowledge in real-life situations. Therefore, the implementation of Inquiry-Based Learning is highly recommended in Madrasah Ibtidaiyah as an innovative strategy to improve the quality of learning and prepare students to face the challenges of 21st-century education. This approach not only strengthens students' cognitive development but also supports the formation of responsible, analytical, and creative learners.

Keywords: *Higher-Order Thinking Skills (HOTS), Inquiry-Based Learning, Madrasah Ibtidaiyah, Critical Thinking, 21st-Century Learning.*



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INTRODUCTION

Education plays a crucial role in developing human potential, particularly in improving knowledge, attitudes, skills, and problem-solving abilities needed in everyday life. In the context of 21st-century education, students are not only expected to master theoretical knowledge but also to develop critical, analytical, creative, and innovative thinking skills. These competencies are commonly referred to as Higher-Order Thinking Skills (HOTS). HOTS enable students to analyze problems, evaluate information critically, and create innovative solutions relevant to social and educational contexts in modern society (Gabriel et al., 2026). According to the revised Bloom's Taxonomy, cognitive skills are categorized into two levels: Lower-Order Thinking Skills (LOTS) and Higher-Order Thinking Skills (HOTS). LOTS include remembering (C1), understanding (C2), and applying (C3), while HOTS consist of analyzing (C4), evaluating (C5), and creating (C6). The implementation of HOTS-based learning has become increasingly important in Indonesia due to the relatively low performance of Indonesian students in international assessments such as the Programme for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS). Consequently, the Indonesian government has emphasized the development of HOTS through the implementation of the 2013 Curriculum, which promotes student-centered learning and critical thinking-oriented assessment (DellAntonio, 2026).

To achieve the objectives of learning activities effectively, appropriate learning methods are required. The term "method" originates from the Latin word *methodos*, which means a path or procedure used to achieve certain goals (Tolaini, 2026). In the educational context, a learning method refers to the procedures and strategies used by educators to deliver learning materials so that the teaching and learning process can run effectively and achieve the expected competencies and learning objectives. Therefore, the selection of suitable learning methods greatly influences students' learning outcomes and cognitive development. Among various learning approaches, Inquiry-Based Learning is considered one of the most effective methods for developing HOTS. Inquiry-Based Learning is a student-centered learning model that encourages students to actively investigate problems, ask questions, explore information, analyze findings, and construct knowledge independently. This learning model emphasizes the process of scientific thinking and problem-solving, enabling students to become active participants in the learning process rather than passive recipients of information (Ham et al., 2024). Through inquiry activities, students are stimulated to think critically, analytically, evaluatively, and creatively in solving problems encountered during learning activities.

Guided Inquiry Learning, in particular, provides opportunities for students to develop their thinking abilities through teacher guidance while still encouraging independent exploration and discovery. In this process, students are encouraged to formulate questions, conduct investigations, analyze data, and draw conclusions systematically (Moloi et al., 2026). As a result, students become more actively involved in learning activities and develop deeper conceptual understanding and stronger reasoning skills. Several previous studies have shown the effectiveness of Inquiry-Based Learning in improving students' learning outcomes and HOTS. Research conducted by Astuti (2020) revealed that the implementation of the inquiry learning model significantly improved science learning outcomes among students at SDN 07 Central Bengkulu (Astuti & Prestiadi, 2020). Similarly, Azmi (2020) found that HOTS-oriented learning in Islamic Religious Education positively influenced students' critical thinking abilities (Sexton et al., 2020). Other studies have also indicated that inquiry-based learning can increase students' motivation, creativity, participation, and problem-solving skills in classroom learning activities.

Based on these findings, it can be understood that learning becomes more meaningful when students are encouraged to think at higher cognitive levels. The success of concept mastery is not only measured by students' ability to remember and understand information but also by their ability to analyze, synthesize, evaluate, and create new ideas based on the concepts learned. Knowledge obtained through higher-order thinking processes tends to remain longer in students' memory because students actively construct their understanding through exploration and reflection (Chen, 2026). Therefore, developing HOTS among students in Madrasah Ibtidaiyah is highly important in preparing them to face educational and social challenges in the modern era. One way to identify whether students have developed HOTS is through assessment activities. Assessments in the form of HOTS-oriented tests can be used to measure and improve students' critical and creative thinking abilities. Furthermore, such assessments help teachers evaluate students' cognitive development and determine the effectiveness of the learning methods implemented in the classroom (Chen, 2026).

Based on the explanation above, this study aims to examine the role of Inquiry-Based Learning in enhancing Higher-Order Thinking Skills (HOTS) among students in Madrasah Ibtidaiyah. This research is expected to contribute to the development of innovative learning strategies that support critical thinking, creativity, and active student participation in Islamic elementary education (Bragazzi et al., 2024).

METHOD

This study employs a qualitative approach using the library research method. Qualitative research is a research approach that aims to understand social and educational phenomena through interpretation, analysis, and description of concepts, theories, and human experiences in natural contexts (Cresswell & Williams, 2026). According to Creswell and Creswell (2018), qualitative research is used to explore and understand the meaning individuals or groups ascribe to social or human problems. In this study, the qualitative approach is considered appropriate because the research focuses on understanding the role of Inquiry-Based Learning in enhancing Higher-Order Thinking Skills (HOTS) among students in Madrasah Ibtidaiyah through the analysis of relevant theories and previous research findings (Kirkham et al., 2026). The library research method is used as the primary research design in this study. Library research refers to a method of collecting information and data through various written and documented sources relevant to the topic being studied. According to Zed (2014), library research is a series of systematic activities involving collecting library materials, reading, recording, organizing, and analyzing information obtained from academic references (Zed et al., 2026). This method allows researchers to develop a deeper understanding of concepts and theories related to HOTS, Inquiry-Based Learning, and educational practices in Madrasah Ibtidaiyah. Through library research, researchers can also identify research gaps and compare findings from previous studies to strengthen the theoretical foundation of the study.

The data used in this research are secondary data obtained from various academic and educational sources. These sources include books, scientific journals, conference proceedings, theses, dissertations, educational reports, government documents, articles, and other scholarly publications related to Higher-Order Thinking Skills (HOTS), Inquiry-Based Learning, and Islamic elementary education (Imam Najmudin et al., 2026). The researcher carefully selected the sources based on their relevance, credibility, validity, and contribution to the research objectives. Priority was given to recent publications and highly cited studies to ensure that the data and theoretical discussions used in this study remain current and academically reliable (Pugliese et al., 2026). In collecting the data, the researcher applied documentation and literature review techniques. The documentation technique was conducted by identifying and collecting relevant written materials related to the research topic. Meanwhile, the literature review process involved examining, comparing, and synthesizing various theories and previous studies concerning the implementation

of Inquiry-Based Learning in improving students' HOTS. Through this process, the researcher explored important concepts such as critical thinking, problem-solving, analytical reasoning, creativity, student-centered learning, and inquiry-based instructional strategies (Owenz et al., 2025). The literature review also helped the researcher identify similarities and differences among previous studies and determine the unique contribution of the current study.

The process of data analysis in this study employed descriptive qualitative analysis. The collected data were analyzed systematically through several stages, including data reduction, data classification, data interpretation, and conclusion drawing (Irish et al., 2025). Data reduction was conducted by selecting and focusing on information relevant to the research objectives, while irrelevant data were excluded from the analysis process. Afterward, the data were classified into thematic categories such as HOTS concepts, characteristics of Inquiry-Based Learning, learning outcomes, critical thinking skills, student engagement, and the effectiveness of inquiry-oriented instruction. This classification process enabled the researcher to organize the information systematically and facilitate deeper interpretation of the findings. Furthermore, the interpretation stage was carried out to analyze and explain the relationship between Inquiry-Based Learning and the enhancement of HOTS among students in Madrasah Ibtidaiyah (Ruf et al., 2025). In this stage, the researcher critically examined the findings from various academic sources to identify patterns, relationships, and educational implications related to the implementation of inquiry-based instruction. The researcher also compared the findings of previous studies to determine the consistency of results regarding the effectiveness of Inquiry-Based Learning in improving students' critical, analytical, evaluative, and creative thinking abilities. Through this interpretative analysis, the researcher aimed to provide a comprehensive understanding of how inquiry-oriented learning contributes to the development of students' higher-order cognitive skills.

To ensure the validity and trustworthiness of the study, the researcher conducted source triangulation by comparing information obtained from different academic references and previous studies (Lee, 2026). This process was important to ensure that the findings were accurate, credible, and supported by sufficient theoretical and empirical evidence. In addition, the researcher carefully evaluated the quality and authenticity of the references used in this study to avoid biased or unreliable information. The use of multiple academic sources also strengthened the consistency and reliability of the research findings (Mulder et al., 2026). The results of this study are expected to provide meaningful contributions to the development of innovative and effective learning strategies in Madrasah Ibtidaiyah. Specifically, this research is expected to enrich educational literature concerning the implementation of Inquiry-Based Learning in developing students' Higher-Order Thinking Skills (HOTS). In addition, the findings of this study may serve as a reference for teachers, educational practitioners, curriculum developers, and researchers in designing learning activities that encourage critical thinking, creativity, problem-solving abilities, and active student participation in classroom learning processes (Mohammadi et al., 2026). Ultimately, this study is expected to support the improvement of educational quality and the development of 21st-century learning competencies among students in Islamic elementary education.

RESULT AND DISCUSSION

Result

The findings of this study indicate that Inquiry-Based Learning has a significant and positive role in enhancing Higher-Order Thinking Skills (HOTS) among students in Madrasah Ibtidaiyah. Based on the analysis of various educational theories, literature sources, and previous studies, inquiry learning encourages students to become more active, analytical, creative, critical, and independent during the learning process. This learning model changes the traditional teacher-centered learning paradigm into a student-centered learning approach, where students are actively

involved in constructing knowledge through exploration, investigation, questioning, and problem-solving activities (Fadillah et al., 2026). Students are not only required to memorize information and understand concepts theoretically, but they are also encouraged to investigate problems, formulate questions, analyze information critically, evaluate findings objectively, and produce solutions independently based on logical reasoning and evidence. Inquiry-Based Learning creates an interactive and meaningful learning environment in which students actively participate in discovering knowledge through direct experiences, exploration activities, collaborative discussions, and scientific investigations. This learning model stimulates students' curiosity and encourages them to think critically when facing problems or phenomena presented during classroom activities. Through inquiry-based activities, students become more motivated to learn because they are directly involved in the process of seeking information and solving problems. Students are encouraged to ask questions, investigate phenomena, test hypotheses, and communicate their findings to others. Consequently, the learning process becomes more engaging, contextual, and relevant to students' daily lives and learning experiences.

The findings also show that inquiry learning improves students' intellectual independence and self-confidence in learning activities. Students become more confident in expressing opinions, asking questions, presenting ideas, and participating in group discussions because they are given opportunities to actively contribute during classroom learning. Inquiry learning also develops students' responsibility toward their own learning process because students are encouraged to explore information independently and make decisions based on the results of their investigations. This condition helps students develop self-regulated learning skills and increases their awareness of the importance of critical and reflective thinking in solving problems. Furthermore, the findings reveal that Inquiry-Based Learning contributes significantly to the development of the three main components of HOTS, namely analyzing, evaluating, and creating, as proposed in Bloom's revised taxonomy (Faughnan et al., 2026). In the analyzing stage, students are trained to identify problems, distinguish facts from opinions, organize information systematically, determine relationships between concepts, and analyze causes and effects of certain phenomena. Students learn to examine information critically and break down complex concepts into smaller and more understandable components. This analytical process trains students to think systematically and logically in understanding learning materials and solving academic problems.

In the evaluating stage, students develop the ability to assess information critically, compare different arguments, provide logical explanations, and make judgments based on evidence and specific criteria. Students are encouraged to reflect on their findings, evaluate the effectiveness of problem-solving strategies, and determine whether conclusions are supported by sufficient evidence (Alsalhi et al., 2026). This stage also develops students' ability to think objectively and responsibly when making decisions or responding to issues discussed during learning activities. Through evaluation activities, students become more capable of identifying strengths and weaknesses in arguments, information, and scientific findings. Meanwhile, in the creating stage, students are encouraged to formulate ideas, generate hypotheses, design problem-solving strategies, and produce innovative solutions or products based on their understanding and experiences. Students become more creative in developing ideas and applying concepts learned in classroom activities to new situations or real-life contexts. Inquiry learning provides opportunities for students to create original ideas and explore different approaches to solving problems. As a result, students not only develop cognitive understanding but also improve creativity, innovation, and productive thinking skills that are highly important in 21st-century education.

The findings also demonstrate that inquiry learning positively influences students' motivation and participation in classroom activities. Students become more enthusiastic and interested in learning because inquiry activities allow them to explore topics actively and interact directly with learning materials. Collaborative discussions, investigative tasks, experiments, and problem-solving activities improve students' communication, teamwork, and social interaction skills. Students learn

to exchange ideas, respect different opinions, and work collaboratively to achieve common learning objectives. This condition creates a more democratic, interactive, and student-centered learning atmosphere compared to conventional teacher-centered learning methods, which often position students as passive recipients of information. In addition, inquiry learning contributes to the development of students' problem-solving abilities. Students are trained to identify problems, gather relevant information, analyze possible solutions, and make decisions systematically. This learning process helps students develop critical reasoning and adaptability when facing academic or real-life challenges. Inquiry learning also improves students' metacognitive skills because students are encouraged to reflect on their own learning process, evaluate their understanding, and identify strategies to improve their learning outcomes. Through these reflective activities, students become more aware of their strengths and weaknesses and are able to regulate their learning more effectively.

The results of previous studies analyzed in this research further support the effectiveness of Inquiry-Based Learning in improving HOTS. Astuti (2020) found that the implementation of inquiry learning significantly improved students' science learning outcomes and increased classroom participation. Similarly, Azmi (2020) reported that HOTS-oriented learning positively affected students' critical thinking abilities in Islamic Religious Education. Other studies also revealed that inquiry-based instruction improves students' creativity, curiosity, collaboration skills, and problem-solving abilities across different educational levels and subjects. These findings indicate that Inquiry-Based Learning can effectively support cognitive development and improve students' higher-order thinking abilities in various educational contexts. Moreover, the findings suggest that Inquiry-Based Learning is highly relevant to the educational objectives of Madrasah Ibtidaiyah and the demands of 21st-century learning. Modern education requires students not only to master knowledge but also to possess critical thinking, creativity, communication, collaboration, and problem-solving skills. Inquiry learning provides opportunities for students to develop these competencies through meaningful learning experiences. In the context of Islamic elementary education, inquiry learning also supports the development of moral values, responsibility, discipline, and intellectual curiosity because students are encouraged to seek knowledge actively and apply it positively in their daily lives.

Overall, the findings of this study demonstrate that Inquiry-Based Learning is an effective, innovative, and student-centered learning strategy for developing Higher-Order Thinking Skills (HOTS) among students in Madrasah Ibtidaiyah. The implementation of this learning model provides significant contributions to the improvement of students' cognitive development, particularly in analytical, evaluative, and creative thinking abilities. Through inquiry-based activities, students are encouraged to become active participants in the learning process by investigating problems, asking questions, analyzing information critically, evaluating findings systematically, and creating solutions independently. This learning process helps students construct knowledge through direct experiences and meaningful interactions rather than merely memorizing information delivered by teachers. As a result, students become more capable of understanding concepts deeply and applying their knowledge effectively in academic and real-life situations. Furthermore, Inquiry-Based Learning creates a more interactive and meaningful classroom environment because students are directly involved in exploration, discussion, experimentation, and problem-solving activities. This learning model encourages students to develop curiosity, confidence, independence, and responsibility in learning activities. Students become more enthusiastic and motivated because they are given opportunities to express opinions, ask questions, collaborate with peers, and participate actively in discovering knowledge. Inquiry learning also improves students' communication and collaboration skills through group discussions, presentations, and investigative activities that require teamwork and social interaction. Consequently, the classroom atmosphere becomes more dynamic, democratic, and student-centered compared to conventional teacher-centered learning approaches.

Table 1. Findings of Inquiry-Based Learning in Enhancing Higher-Order Thinking Skills (HOTS)

HOTS Components	Indicators in Inquiry-Based Learning	Students' Abilities and Findings
Analyzing (C4)	Differentiating	Students are able to distinguish relevant and irrelevant information related to scientific concepts and learning materials.
Analyzing (C4)	Organizing	Students are able to classify, arrange, and organize information systematically based on concepts presented during learning activities.
Analyzing (C4)	Attributing	Students are able to connect concepts to real-life situations and determine whether information is factual or opinion-based.
Evaluating (C5)	Checking	Students are able to examine procedures, scientific processes, and findings critically and systematically according to scientific principles.
Evaluating (C5)	Criticizing	Students are able to identify weaknesses or problems in scientific statements and provide logical arguments or alternative solutions.
Creating (C6)	Formulating	Students are able to formulate hypotheses, generate ideas, and identify possible solutions to problems.
Creating (C6)	Planning	Students are able to design strategies, procedures, and research steps systematically to solve problems and conduct investigations.
Creating (C6)	Producing	Students are able to implement plans, execute problem-solving strategies, and create innovative products or ideas useful in learning and everyday life.

The table above presents the findings of the study regarding the role of Inquiry-Based Learning in enhancing students' Higher-Order Thinking Skills (HOTS) in Madrasah Ibtidaiyah. The table is divided into three main HOTS components based on Bloom's revised taxonomy, namely analyzing (C4), evaluating (C5), and creating (C6). Each component is explained through several indicators that describe students' cognitive abilities developed during the implementation of inquiry-based learning activities. The first component is Analyzing (C4), which consists of three indicators: differentiating, organizing, and attributing. In the differentiating indicator, students are able to distinguish relevant and irrelevant information related to scientific concepts and learning materials. Through inquiry activities, students learn to identify facts, opinions, causes, and effects critically and systematically. In the organizing indicator, students are trained to classify, arrange, and organize information into structured patterns. This ability helps students understand relationships between concepts and makes problem-solving processes more effective. Meanwhile,

in the attributing indicator, students are able to connect learning concepts with real-life situations and determine whether information is based on facts or personal opinions. This ability encourages students to think objectively and apply knowledge contextually in everyday life. The second component is Evaluating (C5), which includes checking and criticizing abilities. In the checking indicator, students are able to examine procedures, scientific processes, and research findings critically and systematically according to scientific principles. Students learn to verify the accuracy of information and evaluate whether a process or conclusion is appropriate based on available evidence. In the criticizing indicator, students are encouraged to identify weaknesses, inconsistencies, or problems in scientific statements and provide logical arguments or alternative solutions. These evaluative activities help students develop critical judgment, logical reasoning, and reflective thinking skills. The third component is Creating (C6), which consists of formulating, planning, and producing abilities. In the formulating indicator, students are able to generate ideas, formulate hypotheses, and identify possible solutions to problems. This activity trains students to think creatively and independently in developing new concepts or approaches. In the planning indicator, students are capable of designing strategies, procedures, and research steps systematically to solve problems and conduct investigations. This stage develops students' organizational and problem-solving abilities. Finally, in the producing indicator, students are able to implement plans, execute problem-solving strategies, and create innovative products or ideas useful in learning and daily life. This ability reflects students' creativity and their capacity to apply knowledge in practical and meaningful ways.

Overall, the table demonstrates that Inquiry-Based Learning effectively supports the development of Higher-Order Thinking Skills (HOTS) among students in Madrasah Ibtidaiyah. Through inquiry-based activities such as questioning, investigation, analysis, discussion, and problem-solving, students become more active, critical, creative, and independent in the learning process. The findings indicate that inquiry learning not only improves students' cognitive achievement but also develops important 21st-century skills such as critical thinking, creativity, collaboration, communication, and problem-solving abilities.

Discussion

Inquiry-Based Learning is a learning approach that emphasizes students' active involvement in the learning process through investigation, questioning, exploration, experimentation, and discovery activities. The term *inquiry* originates from the English word *inquiry*, which refers to the process of seeking information, investigating phenomena, and finding answers to questions through systematic and scientific investigation. According to Amri (2010), inquiry is a process of obtaining information through observations, experiments, and investigative activities aimed at solving problems by using critical and logical thinking skills. In inquiry learning, students are encouraged to become active participants in constructing their own understanding rather than merely receiving information passively from teachers. This learning approach places students at the center of the learning process, where they are expected to explore concepts independently and develop deeper understanding through direct experiences. Consequently, inquiry learning not only improves cognitive achievement but also develops students' curiosity, confidence, independence, and responsibility in learning activities.

According to Sanjaya (2006), inquiry learning is a series of learning activities that emphasize critical and analytical thinking processes to discover answers to problems being studied. The learning process is generally carried out through questioning, investigation, discussion, and reflection activities between teachers and students. In this approach, teachers act not as the sole source of knowledge but as facilitators, motivators, and guides who direct students toward discovering concepts independently. Similarly, Kidsvatter et al. explain that inquiry learning involves students' critical thinking skills in analyzing and solving problems systematically. Through inquiry learning, students are encouraged to identify problems, formulate questions, gather

information, analyze findings, test hypotheses, and draw conclusions based on evidence obtained during the learning process. Therefore, inquiry learning is considered highly relevant for developing Higher-Order Thinking Skills (HOTS) because it encourages students to think beyond memorization and understanding toward deeper cognitive processes such as analysis, evaluation, and creation.

One of the main characteristics of inquiry learning is its emphasis on student-centered learning activities. In this learning approach, students are actively involved in searching for information, investigating phenomena, discussing ideas, analyzing findings, and formulating conclusions independently or collaboratively. Teachers play the role of facilitators who provide guidance, stimulate curiosity, and create a supportive learning environment that encourages active participation. Inquiry learning also encourages students to express opinions freely, ask questions confidently, exchange ideas collaboratively, and explore multiple possibilities for solving problems. Such learning conditions create a democratic and interactive classroom atmosphere in which students become more motivated to participate actively in learning activities. In addition, inquiry learning develops students' intellectual independence because students are given opportunities to make decisions, test ideas, and solve problems based on their own reasoning and experiences. As a result, students become more responsible for their own learning process and develop stronger critical and creative thinking abilities.

The implementation of inquiry learning is closely related to Piaget's theory of cognitive development, which emphasizes the importance of active learning experiences in intellectual growth. According to Piaget, intellectual development is influenced by several factors, including maturation, physical experience, social experience, and equilibration (Sanjaya, 2006). Maturation refers to the physiological and psychological growth processes that support cognitive development, while physical experience involves direct interaction with objects and environments that stimulate thinking processes. Social experience occurs when students interact with teachers, peers, and their surrounding environment, enabling them to exchange ideas, consider different perspectives, and develop social understanding. Equilibration refers to the process of adjusting existing knowledge structures to accommodate new information and experiences. Inquiry learning supports all these developmental factors because students are actively involved in investigating problems, conducting experiments, discussing ideas, and reflecting on findings. Through these activities, students gradually construct and reconstruct their cognitive structures, allowing them to analyze, evaluate, and create knowledge more effectively and independently.

The findings of this study indicate that inquiry learning strongly supports the development of HOTS components proposed in Bloom's revised taxonomy. According to Nugroho (2018), HOTS include analyzing (C4), evaluating (C5), and creating (C6). These cognitive processes represent higher levels of thinking that require students to go beyond memorizing information and instead use knowledge critically and creatively in solving problems. In the analyzing stage, students learn to identify relationships between concepts, distinguish relevant and irrelevant information, organize ideas systematically, and examine patterns or causes of problems. Students are trained to break complex information into smaller components and understand the relationships among these components. In evaluation activities, students assess information critically, compare different perspectives, provide logical arguments, and make judgments based on evidence and specific criteria. This stage encourages students to think objectively and rationally when making decisions or solving problems. Meanwhile, in the creating stage, students are encouraged to generate new ideas, formulate hypotheses, design problem-solving strategies, and produce innovative products or solutions. These activities train students to become creative thinkers who can apply knowledge in new situations and develop original ideas independently.

Furthermore, inquiry learning provides meaningful and contextual learning experiences because students are directly involved in the process of discovering and constructing knowledge. Students are encouraged to ask questions, investigate problems, conduct experiments, analyze

findings, test ideas, and reflect on their learning experiences. Such activities help students understand concepts more deeply because learning occurs through direct interaction with problems and real-life situations. This learning approach also improves students' motivation and engagement because students feel more responsible for their own learning process and become actively involved in classroom activities. Inquiry learning creates a learning environment that is dynamic, interactive, and collaborative, enabling students to communicate ideas effectively and work together in solving problems. These findings are consistent with previous studies indicating that inquiry learning can improve students' academic achievement, critical thinking skills, creativity, communication abilities, and classroom participation.

In the context of Madrasah Ibtidaiyah, the implementation of Inquiry-Based Learning is highly important because students at the elementary education level require learning experiences that stimulate curiosity, creativity, imagination, and problem-solving abilities from an early age. Madrasah Ibtidaiyah students are in a developmental stage where they naturally possess high curiosity and enthusiasm for exploring their environment. Therefore, inquiry learning is highly suitable because it provides opportunities for students to learn actively through exploration, questioning, and investigation activities. Inquiry learning also aligns with the objectives of 21st-century education, which emphasize critical thinking, collaboration, communication, creativity, and digital literacy. Through inquiry-based instruction, teachers can create more interactive, innovative, and meaningful learning environments that help students develop both intellectual and social competencies simultaneously. In addition, inquiry learning supports the integration of Islamic values in Madrasah Ibtidaiyah education because students are encouraged to think critically, act responsibly, and appreciate knowledge as part of lifelong learning.

Moreover, inquiry learning contributes significantly to the development of students' self-confidence and independence in learning activities. Students become more confident in expressing opinions, asking questions, presenting ideas, and solving problems because they are actively involved in the learning process. Inquiry activities also encourage students to take initiative and responsibility for their own learning outcomes. This condition is very important in developing lifelong learning habits because students learn not only to acquire knowledge but also to develop the ability to seek, evaluate, and apply information independently. As a result, students become more adaptive, innovative, and prepared to face educational and social challenges in the modern era. Therefore, Inquiry-Based Learning can be considered an effective and innovative strategy for enhancing Higher-Order Thinking Skills (HOTS) among students in Madrasah Ibtidaiyah. This learning model not only improves students' cognitive achievement but also supports the development of critical thinking, creativity, independence, collaboration, communication, and lifelong learning skills needed in 21st-century education. By implementing inquiry-based instruction consistently, teachers can create meaningful learning experiences that encourage students to become active learners, problem solvers, and creative thinkers capable of contributing positively to society. Ultimately, inquiry learning helps prepare students to face the increasingly complex challenges of modern education and global society while maintaining moral and intellectual values in Islamic elementary education.

CONCLUSION

Based on the findings and discussion of this study, it can be concluded that Inquiry-Based Learning has an important and significant role in enhancing Higher-Order Thinking Skills (HOTS) among students in Madrasah Ibtidaiyah. Inquiry learning encourages students to become active participants in the learning process through investigation, exploration, questioning, problem-solving, and discovery activities. This learning approach not only improves students' understanding of concepts but also develops their critical, analytical, evaluative, and creative thinking abilities. Through inquiry learning, students are encouraged to construct knowledge independently based on direct experiences and meaningful learning activities, making the learning process more

interactive, student-centered, and effective in developing intellectual abilities. The findings indicate that students' analytical abilities developed through inquiry learning can be categorized into three important aspects. The first aspect is differentiating ability, in which students are able to distinguish relevant and irrelevant information related to scientific concepts and learning materials. In this stage, students are trained to identify facts, opinions, causes, effects, and relationships between concepts critically and systematically. The second aspect is organizing ability, where students are capable of identifying, classifying, and arranging information into structured patterns or categories. Through inquiry activities, students learn how to organize ideas, data, and findings systematically to facilitate understanding and problem-solving processes. The third aspect is attributing ability, in which students are able to connect concepts learned in the classroom with real-life situations and phenomena in their surrounding environment. Students can determine whether certain information is based on factual evidence or merely personal opinion, enabling them to think more objectively and scientifically.

Furthermore, inquiry learning also contributes significantly to the development of students' creative abilities or creating skills. The ability to create is categorized into three major components. The first component is formulating ability, where students are able to formulate hypotheses, generate ideas, identify problems, and develop logical relationships between concepts. In this stage, students begin to develop independent thinking by proposing possible solutions or explanations for the problems being studied. The second component is planning ability, in which students are capable of designing strategies, procedures, or steps to solve problems and conduct investigations systematically. Students learn to plan learning activities, research processes, and practical applications based on the knowledge and information they have obtained. The third component is producing ability, where students are able to implement their plans, execute problem-solving strategies, and produce new ideas, products, or solutions that are useful and relevant to learning objectives. Through this process, students develop creativity, innovation, and confidence in expressing and implementing their ideas independently. In addition to analytical and creative abilities, inquiry learning also improves students' evaluative skills. The findings reveal that students' evaluation abilities consist of two important categories. The first category is checking ability, which refers to students' capacity to examine information, procedures, research results, and scientific processes carefully and systematically. Students are trained to verify whether a process or conclusion is appropriate according to scientific principles, logical reasoning, and available evidence. This ability helps students develop accuracy, responsibility, and critical judgment during learning activities. The second category is criticizing ability, where students are capable of identifying weaknesses, errors, inconsistencies, or problems within scientific statements, products, or processes. Students also learn to provide constructive criticism, logical arguments, and alternative solutions based on analytical thinking and evidence. Through these activities, students become more reflective, objective, and critical in evaluating information and solving problems.

The implementation of Inquiry-Based Learning in Madrasah Ibtidaiyah is highly relevant to the goals of 21st-century education, which emphasize critical thinking, creativity, collaboration, communication, and problem-solving abilities. Inquiry learning creates meaningful learning experiences because students are actively involved in discovering knowledge rather than passively receiving information from teachers. This learning model also helps students develop independence, curiosity, confidence, and responsibility in the learning process. Moreover, inquiry learning aligns with the characteristics of elementary-level students who naturally possess curiosity and enthusiasm for exploring new knowledge and experiences. Therefore, Inquiry-Based Learning can be considered an effective and innovative learning strategy for improving Higher-Order Thinking Skills (HOTS) among students in Madrasah Ibtidaiyah. The implementation of inquiry learning not only improves students' cognitive achievement but also supports the development of intellectual, social, and creative competencies needed in modern education and everyday life. Consequently, teachers are encouraged to apply inquiry-based instructional strategies consistently

in classroom learning activities to create active, meaningful, and student-centered learning environments. It is also expected that future researchers will conduct further studies regarding the implementation of Inquiry-Based Learning in different educational contexts and subjects to enrich educational research and improve the quality of learning in Islamic elementary education.

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If needed, the author can add an appreciation to this section.

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