International Journal of Studies in International Education

E-ISSN : 3048-0884
P-ISSN : 3047-356X

Research Review

Differentiated Instruction to Enhance Critical Thinking Character in Islamic Elementary School Students in Makassar

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Abstract: This research aims to analyse the effectiveness of differentiated instruction implementation in enhancing critical thinking character in Islamic Elementary School students in Makassar. The research employed a mixed-method approach with an embedded experimental design. The research sample consisted of 68 fourth and fifth-grade students from three Islamic Elementary Schools in Makassar, selected through purposive sampling. Data were collected through observation, critical thinking ability tests, interviews, and documentation. Differentiated instruction was implemented for 12 weeks, considering variations in students' learning readiness, interests, and learning profiles. The results showed that: (1) the implementation of differentiated instruction was effective with an implementation rate of 87.5%; (2) there was a significant improvement in students' critical thinking abilities with an effect size of 0.82 (high category); (3) the three aspects of critical thinking that experienced the highest improvement were analyzing arguments, evaluating information, and drawing conclusions based on evidence; (4) success supporting factors included comprehensive lesson planning, school leadership support, teacher competence, and integration of Islamic values in the learning process. This research recommends the implementation of differentiated instruction as a strategy to develop students' critical thinking abilities while considering individual learning characteristics and needs.

Keywords: Differentiated Instruction, Critical Thinking, Islamic Elementary School, Learning Readiness, Interests, Learning Profile

Received Maret 15th 2025;
Revised Maret 30th 2025;
Accepted April 08th 2025;
Online Available : April 10th 2025
Curr. Ver.: April 10th 2025

1. Introduction

The rapid development of science and technology in the era of globalization requires individuals to possess higher-order thinking skills, particularly critical thinking abilities. Critical thinking has become one of the essential competencies needed to address the complexities of 21st-century challenges (Wagner, 2010; Griffin et al., 2012). In the context of elementary education, the early development of critical thinking abilities is believed to prepare students for future life challenges (Voogt & Roblin, 2012).

Islamic Elementary Schools, as educational institutions that combine the national curriculum with Islamic values, have a strategic role in preparing a Muslim generation that not only has a good understanding of religion but also possesses critical thinking skills necessary for contemporary life. In Makassar City, Islamic Elementary Schools have experienced significant development in the past decade, both in terms of quantity and quality. However, based on a preliminary study conducted by the researcher in five Islamic Elementary Schools in Makassar, it was found that students' critical thinking abilities were still not optimal. Observation results showed that students tended to accept information

without questioning its validity, were less capable of analyzing problems in depth, and had limitations in evaluating information sources.

One factor affecting the suboptimal development of students' critical thinking abilities is the implementation of learning approaches that do not adequately consider the diversity of student characteristics. Learning approaches that tend to be uniform (one-size-fits-all) are unable to accommodate individual student learning needs (Tomlinson, 2014). In this context, differentiated instruction offers a promising approach to optimize the development of students' critical thinking abilities.

Differentiated instruction is a learning approach that responds to student diversity by modifying content, process, and learning products according to students' learning readiness, interests, and learning profiles (Tomlinson, 2014). Various research shows that differentiated instruction can increase learning motivation, student engagement, and academic achievement (Tieso, 2015; Valiandes, 2015). However, research on the effectiveness of differentiated instruction in the context of Islamic Elementary Schools in Indonesia, particularly for the development of critical thinking abilities, is still very limited.

Based on this background, this research seeks to analyze the effectiveness of differentiated instruction implementation in enhancing critical thinking character in Islamic Elementary School students in Makassar. This research not only examines the impact of differentiated instruction on students' critical thinking abilities but also explores how Islamic values can be integrated into the differentiated instruction approach to strengthen the development of students' critical thinking abilities. The results of this research are expected to provide theoretical and practical contributions to the development of learning models that are adaptive to the characteristics and learning needs of Islamic Elementary School students in Indonesia.

Research Questions

Based on the background above, the research questions in this study are as follows:

- How is the implementation of differentiated instruction in Islamic Elementary Schools in Makassar?
- How effective is differentiated instruction in improving critical thinking abilities of Islamic Elementary School students in Makassar?
- Which aspects of critical thinking experienced significant improvement through the application of differentiated instruction?
- What are the supporting and inhibiting factors in implementing differentiated instruction to improve critical thinking abilities of Islamic Elementary School students in Makassar?

Research Objectivess

This research aims to:

- Analyze the implementation of differentiated instruction in Islamic Elementary Schools in Makassar.
- Evaluate the effectiveness of differentiated instruction in improving critical thinking abilities of Islamic Elementary School students in Makassar.
- Identify aspects of critical thinking that experienced significant improvement through the application of differentiated instruction.
- Analyze supporting and inhibiting factors in implementing differentiated instruction to improve critical thinking abilities of Islamic Elementary School students in Makassar.

Research Benefits

This research is expected to provide the following benefits:

- Theoretical Benefits
    - Enrich the body of knowledge in the field of differentiated instruction, particularly in the context of Islamic education.
    - Contribute to the development of learning models that are adaptive to the characteristics and learning needs of Islamic Elementary School students.
    - Strengthen the theoretical foundation on the integration of Islamic values in developing students' critical thinking abilities.
- Practical Benefits
    - For teachers: Provide practical references on implementation strategies of differentiated instruction to improve students' critical thinking abilities.

- For schools: Provide an empirical foundation for policy development and quality improvement programs for learning that considers student diversity.
- For researchers: Serve as a basis for further research related to differentiated instruction and critical thinking development in the context of Islamic education.

2. Literature Review

Differentiated Instruction

Basic Concepts of Differentiated Instruction

Differentiated instruction is a learning approach that responds to the diversity of student characteristics through systematic modifications to learning content, process, and products (Tomlinson, 2014). Unlike conventional learning approaches that tend to be uniform, differentiated instruction allows teachers to accommodate differences in students' learning readiness, interests, and learning profiles, enabling each student to optimize their learning potential. Tomlinson (2014) identifies three main aspects that can be differentiated in learning:

- Content: what students need to learn or how students gain access to information. Content differentiation can be done by providing learning materials with varying levels of complexity, using multimedia, or grouping students based on learning needs.
- Process: how students understand and master content. Process differentiation includes the use of various learning strategies, flexible time, and activities that are adapted to students' learning styles.
- Product: how students demonstrate what they have learned. Product differentiation allows students to demonstrate mastery of material through various ways, such as presentations, projects, or exhibitions.

Differentiation in learning is done based on three student characteristics (Tomlinson, 2014):

- Learning readiness: the level of understanding and skills of students related to the material or skills to be learned. Differentiation based on learning readiness aims to bridge the gap between students' current abilities and the learning objectives to be achieved.
- Interest: topics or activities that trigger students' curiosity and desire to learn more. Differentiation based on interest aims to increase students' motivation and engagement in learning.
- Learning profile: the way students learn most effectively, influenced by learning styles, multiple intelligences, gender, and cultural background. Differentiation based on learning profile aims to facilitate students learning in ways that are most suitable to their individual characteristics.

Implementation of Differentiated Instruction

The implementation of differentiated instruction involves several strategic steps (Tomlinson & Imbeau, 2010):

- Diagnostic assessment: identifying students' learning readiness, interests, and learning profiles through pre-tests, interest surveys, or observations.
- Flexible grouping: forming student groups that are dynamic and can change according to learning objectives, readiness, interests, or student learning profiles.
- Varied learning strategies: using various learning strategies, such as problem-based learning, cooperative learning, or independent learning, tailored to student needs.
- Effective classroom management: developing classroom routines and management systems that allow teachers to give attention to groups or individual students while other students work independently or collaboratively.
- Continuous assessment: conducting formative assessments consistently to monitor student progress and adjust learning according to needs.

Differentiated Instruction in the Context of Islamic Education

Islamic education has unique characteristics that emphasize the integration of worldly and spiritual knowledge (Abdullah, 2018). In this context, differentiated instruction can be implemented with attention to Islamic values that form the philosophical foundation of Islamic education. Several principles that can serve as a foundation in implementing differentiated instruction in the context of Islamic education are:

- Fitrah principle: recognizing the uniqueness of each individual as a gift from Allah SWT and facilitating the development of individual potential according to their fitrah (natural disposition).
- Tafakkur principle: encouraging students to reflect on and analyze natural and social phenomena as signs of Allah's power, thereby developing critical thinking abilities.
- Tazkiyah principle: combining intellectual development with heart purification and the cultivation of noble character.
- Ukhuwah principle: building a collaborative and supportive learning environment based on Islamic brotherhood.

The implementation of differentiated instruction in the context of Islamic education can also enrich this approach by incorporating spiritual and moral dimensions that are characteristic of Islamic education (Lubis & Wekke, 2016).

Critical Thinking

The Concept of Critical Thinking

Critical thinking is a cognitive process that involves analysis, evaluation, and synthesis of information to make decisions or conclusions based on evidence and logical reasoning (Facione, 2011). Ennis (2011) defines critical thinking as "reflective and reasonable thinking that focuses on deciding what to believe or do."

Facione (2011) identifies six core cognitive skills in critical thinking:

- Interpretation: understanding and expressing the meaning of various experiences, situations, data, events, judgments, conventions, beliefs, rules, procedures, or criteria.
- Analysis: identifying inferential relationships between statements, questions, concepts, descriptions, or other forms of representation intended to express beliefs, judgments, experiences, reasons, information, or opinions.
- Evaluation: assessing the credibility of statements or other representations and assessing the logical strength of inferential relationships between statements, descriptions, questions, or other forms of representation.
- Inference: identifying and obtaining elements needed to draw reasonable conclusions, making conjectures and hypotheses, considering relevant information, and drawing consequences from data, statements, principles, evidence, judgments, beliefs, opinions, concepts, descriptions, questions, or other forms of representation.
- Explanation: stating the results of one's reasoning, justifying that reasoning based on evidential, conceptual, methodological, criteria, and contextual considerations, and presenting reasoning in the form of cogent arguments.
- Self-regulation: awareness of monitoring one's cognitive activities, the elements used in those activities, the results produced, especially by applying skills of analysis and evaluation to one's own inferential judgments.

Development of Critical Thinking in Elementary School Students

The development of critical thinking abilities in elementary school students has its own characteristics that need to consider the stage of children's cognitive development. According to Piaget, elementary school students are in the concrete operational stage (7-11 years) and beginning to enter the formal operational stage (11 years and above) (Santrock, 2011). At this stage, children begin to be able to think logically about concrete objects and events, classify objects based on several characteristics, and understand the principles of conservation.

Several effective strategies for developing critical thinking abilities in elementary school students include:

- Use of higher-order questions: asking questions that encourage students to analyze, synthesize, and evaluate information, not just recall facts.
- Problem-based learning: presenting contextual problems relevant to students' lives and encouraging them to identify solutions through investigation and reflection.
- Discussion and debate: providing opportunities for students to express opinions, consider different perspectives, and build arguments based on evidence.
- Metacognition: teaching students to monitor and evaluate their own thinking processes, and reflect on effective learning strategies.
- Information literacy: developing students' abilities to search for, evaluate, and use information from various sources effectively and ethically.

Critical Thinking in Islamic Perspective

Islam has a rich intellectual tradition that encourages the development of critical thinking. The Qur'an repeatedly invites humans to use their intellect and engage in deep reflection (tafakkur) on the verses of Allah, both written (Qur'aniyah) and spread throughout the universe (Kauniyah) (Al-Attas, 2017).

Several concepts in the Islamic intellectual tradition related to critical thinking include:

- Tafakkur: deep reflection on Allah's creation to increase faith and obtain wisdom.
- Tadabbur: comprehensive reflection on the verses of the Qur'an to understand their meaning comprehensively.
- Burhan: logical proof based on strong evidence to strengthen belief.
- Ijtihad: exertion of intellectual effort to solve problems based on authoritative sources (Qur'an and Hadith) and systematic methodology.

In the context of Islamic education, the development of critical thinking abilities not only aims to improve students' intellectual capacity but also to strengthen faith and form character in accordance with Islamic values (Al-Attas, 2017; Lubis & Wekke, 2016).

Relationship Between Differentiated Instruction and Critical Thinking Development

Differentiated instruction has significant potential to develop students' critical thinking abilities through several mechanisms:

- Personalization of cognitive challenge: By adjusting task complexity to students' learning readiness, differentiated instruction allows each student to get an optimal cognitive challenge (neither too easy nor too difficult), thereby encouraging the development of critical thinking abilities.
- Increase in motivation and engagement: By accommodating student interests, differentiated instruction can increase intrinsic motivation and active engagement in learning, which are important prerequisites for critical thinking development.
- Facilitation of various ways of learning: By paying attention to students' learning profiles, differentiated instruction allows students to access and process information in the most effective way for them, thus facilitating the development of critical thinking skills.
- Strengthening of formative assessment: The continuous assessment process in differentiated instruction encourages students to reflect on their thinking, identify strengths and weaknesses, and develop strategies to improve understanding, which are important components of critical thinking.

Several studies have shown a positive relationship between differentiated instruction and the development of critical thinking abilities. For example, Valiandes' (2015) research shows that students who experienced differentiated instruction showed significant improvements in analysis, evaluation, and inference abilities compared to students who received conventional instruction.

In the context of Islamic education, the integration of differentiated instruction with Islamic values can strengthen the development of students' critical thinking. For example, by encouraging students to analyze social phenomena from the perspective of the Qur'an and Hadith, evaluate information by considering Islamic values, and develop solutions that align with Islamic principles for contemporary problems.

3. Research Methodology

Research Approach and Design

This research uses a mixed-method approach with an embedded experimental design. This approach was chosen to gain a comprehensive understanding of the effectiveness of differentiated instruction in improving students' critical thinking abilities, not only from a quantitative perspective (measurement of score improvement) but also from a qualitative perspective (implementation process and participant perceptions).

In the embedded experimental design, qualitative data are collected before, during, and after the experimental phase to enrich understanding of the process and impact of interventions (Creswell & Plano Clark, 2011). The quantitative phase uses a quasi-experimental design with a pretest-posttest control group, while the qualitative phase uses a case study approach to explore the implementation of differentiated instruction in depth.

Population and Sample

The research population is all fourth and fifth-grade students of Islamic Elementary Schools in Makassar City for the 2022/2023 academic year. The selection of fourth and fifth grades was made considering that at these levels, students already have the basic literacy skills necessary for critical thinking activities, but are still in a cognitive development phase that can be optimized.

The research sample consists of 68 students selected using purposive sampling technique based on the criteria: (1) coming from Islamic Elementary Schools that implement the national curriculum and religious curriculum in an integrated manner; (2) having a variety of academic abilities (high, medium, low); and (3) having access to adequate learning facilities for the implementation of differentiated instruction.

The sample was divided into two groups: the experimental group (n=34) receiving differentiated instruction and the control group (n=34) receiving conventional instruction. For the qualitative phase, 12 students (6 from each group) and 6 teachers were purposively selected to be informants in in-depth interviews.

Research Variables

The variables in this research include:

- Independent variable: Differentiated instruction, which is a learning approach that modifies learning content, process, and products according to students' learning readiness, interests, and learning profiles.
- Dependent variable: Students' critical thinking abilities, which include aspects of interpretation, analysis, evaluation, inference, explanation, and self-regulation.
- Moderator variables: Student characteristics (learning readiness, interests, learning profile) and teacher characteristics (teaching experience, understanding of differentiated instruction).

Research Instruments

The research instruments used include:

- Critical Thinking Ability Test: An instrument developed based on Facione's (2011) critical thinking framework and adapted for the Elementary School context. This test consists of 25 items measuring six aspects of critical thinking (interpretation, analysis, evaluation, inference, explanation, and self-regulation) with a Cronbach's alpha reliability of 0.85.
- Differentiated Instruction Implementation Observation Sheet: An instrument to observe the implementation of differentiated instruction covering aspects of content, process, and product modification, as well as responsiveness to students' learning readiness, interests, and learning profiles.
- Semi-Structured Interview Guide: An instrument to explore teacher and student perceptions about the implementation of differentiated instruction and its impact on critical thinking development.
- Student Interest and Learning Style Questionnaire: An instrument to identify student interests and learning preferences as a basis for learning differentiation.
- Learning Product Assessment Rubric: An instrument to evaluate student learning products that reflect critical thinking abilities.

All instruments have been validated through expert judgment and limited trials before being used in the research.

Research Procedure

The research was conducted in several stages:

- Preparation Stage (2 months):
  - Conducting a preliminary study to identify problems and needs
  - Developing and validating research instruments
  - Conducting training for teachers on the implementation of differentiated instruction
  - Conducting a pre-test to measure students' initial critical thinking abilities
  - Identifying students' learning readiness, interests, and learning profiles through diagnostic assessment
- Implementation Stage (12 weeks):
  - Implementing differentiated instruction in the experimental group considering variations in learning readiness, interests, and student learning profiles

- Implementing conventional learning in the control group
- Conducting periodic observations of the learning process
- Collecting qualitative data through interviews and document analysis

- Evaluation Stage (1 month):
  - Conducting a post-test to measure students' critical thinking abilities after intervention
  - Conducting final interviews with teachers and students
  - Analyzing student learning products
- Analysis and Reporting Stage (2 months):
  - Analyzing quantitative and qualitative data
  - Preparing research reports
  - Disseminating research results

Data Analysis Techniques

Quantitative data were analyzed using:

- Descriptive Statistics: To describe sample characteristics and distribution of critical thinking ability scores.
- Independent t-test and Paired t-test: To compare pre-test and post-test scores between experimental and control groups, as well as comparing pre-test and post-test scores within each group.
- Effect Size: To measure the magnitude of the impact of differentiated instruction intervention on students' critical thinking abilities.
- Analysis of Covariance (ANCOVA): To control variables that potentially influence research results, such as students' initial abilities.

Qualitative data were analyzed using:

- Thematic Analysis: To identify patterns and themes that emerge from interview and observation data related to the implementation of differentiated instruction and its impact on critical thinking development.
- Content Analysis: To analyze learning documents and student learning products that reflect critical thinking abilities.

Integration of quantitative and qualitative data was done through method triangulation and source triangulation to increase the validity of research findings.

4. Research Results and Discussion

Implementation of Differentiated Instruction

Student and Teacher Profiles

Of the total 68 students who were the research sample, 36 students (52.9%) were male and 32 students (47.1%) were female. Based on grade level, 32 students (47.1%) were from fourth grade and 36 students (52.9%) were from fifth grade. Based on the results of the initial diagnostic assessment, 22 students (32.4%) had critical thinking abilities in the low category, 35 students (51.5%) in the medium category, and 11 students (16.2%) in the high category.

The teachers involved in the research consisted of 6 people with the following characteristics: 2 people (33.3%) had less than 5 years of teaching experience, 3 people (50%) had 5-10 years of teaching experience, and 1 person (16.7%) had more than 10 years of teaching experience. In terms of educational qualifications, 5 teachers (83.3%) had bachelor's degrees in education (S.Pd.) and 1 teacher (16.7%) had a master's degree in education (M.Pd.).

Diagnostic Assessment

Before implementing differentiated instruction, a diagnostic assessment was conducted to identify students' learning readiness, interests, and learning profiles. The results of the learning readiness assessment showed that students had varying levels of learning readiness, particularly in literacy, numeracy, and reasoning abilities. Based on the results of the critical thinking ability pre-test, students were grouped into three readiness categories: ready with support (30%), ready (50%), and ready with challenge (20%).

Interest assessment revealed that students had diverse interests, with the highest interest categories being themes related to technology (28%), science and discovery (22%), local culture and history (18%), environment and nature (17%), and socio-religious themes (15%).

This information was used to design tasks and learning activities that were relevant to student interests.

Learning profile assessment identified that students had different learning preferences. Based on learning modality, 32% of students tended to be visual, 24% auditory, 28% kinesthetic, and 16% multimodal. Based on multiple intelligences, the highest distribution tendencies of students were in linguistic intelligence (18%), logical-mathematical (17%), visual-spatial (15%), musical (12%), kinesthetic (14%), interpersonal (10%), intrapersonal (8%), and naturalist (6%).

Differentiation Implementation

Based on the results of the diagnostic assessment, differentiated instruction was implemented by considering variations in learning content, process, and products:

Content Differentiation:

- Provision of texts with different difficulty levels to accommodate students' diverse literacy levels
- Use of multimedia (text, audio, video, images) to present information
- Organization of concepts in concept maps with adjusted complexity levels
- Integration of Islamic themes relevant to the subject matter

b. Process Differentiation:

- Application of varied learning strategies (problem-based learning, cooperative learning, discovery learning)
- Use of scaffolding techniques tailored to student needs
- Flexible time allocation for task completion
- Provision of questions with varying cognitive levels (from factual to evaluative)
- Flexible student grouping based on readiness, interests, or learning profiles

Product Differentiation:

- Provision of choices of ways to demonstrate understanding (written reports, oral presentations, posters, drama, multimedia)
- Development of assessment rubrics that consider students' readiness levels
- Assignment of projects that integrate Islamic values with learning themes

Observation results showed that the implementation of differentiated instruction proceeded with an average implementation rate of 87.5%. The most consistently implemented aspect was content differentiation (92.3%), followed by process differentiation (85.7%), and product differentiation (84.6%). Responsiveness to student characteristics was highest in the aspect of learning readiness (90.2%), followed by interests (87.5%), and learning profiles (84.8%).

Integration of Islamic Values

Integration of Islamic values in differentiated instruction was done through several approaches:

- Content Integration: Linking subject matter with relevant verses of the Qur'an and Hadith, as well as using examples from Islamic history and civilization.
- Methodological Integration: Adopting question and answer methods (hiwar), problem-solving (hallul masyakil), and reflection (muhasabah) rooted in the Islamic education tradition.
- Value Integration: Instilling Islamic values such as honesty in thinking, objectivity in assessing information, and fairness in concluding, which support the development of critical thinking.
- Contextual Integration: Using contemporary issues relevant to Muslim life in Indonesia as a context for developing critical thinking abilities.

Effectiveness of Differentiated Instruction in Improving Critical Thinking Abilities

Pre-test and Post-test Results

Descriptive statistical analysis results showed that in the pre-test, the experimental group had an average critical thinking ability score of 62.35 (SD=8.72), while the control group had an average score of 63.18 (SD=9.05). An independent t-test showed no significant difference between the two groups in the pre-test ($t(66)=0.384$, $p>0.05$), indicating equivalence of initial abilities between the two groups.

In the post-test, the experimental group showed an increase in average score to 78.62 (SD=7.45), while the control group showed a more moderate increase to 68.74 (SD=8.23). An independent t-test showed a significant difference between the two groups in the post-test ($t(66)=5.275$, $p<0.001$), with the experimental group obtaining a higher score.

A paired t-test showed that the experimental group experienced a significant increase from pre-test to post-test ($t(33)=13.624$, $p<0.001$), with an average increase of 16.27 points. The control group also experienced a significant increase ($t(33)=6.518$, $p<0.001$), but with a smaller average increase of 5.56 points.

The calculation of effect size using Cohen's d showed that differentiated instruction had a large impact ($d=0.82$) on improving students' critical thinking abilities.

Analysis of Covariance (ANCOVA)

To control for the influence of students' initial abilities, an analysis of covariance (ANCOVA) was conducted with the pre-test score as a covariate. The ANCOVA results showed that after controlling for initial ability, there was a significant difference between the experimental and control groups in the post-test score ($F(1,65)=28.372$, $p<0.001$, partial $\eta^2=0.304$). This confirmed that differentiated instruction made a significant contribution to improving students' critical thinking abilities.

Analysis Based on Student Characteristics

Further analysis was conducted to determine the effectiveness of differentiated instruction on students with different characteristics. The results showed that:

- Based on learning readiness: Differentiated instruction provided the most significant benefit for students with low learning readiness (average increase of 18.92 points), followed by students with medium learning readiness (16.45 points) and high learning readiness (13.54 points).
- Based on interests: There was no significant difference in the effectiveness of differentiated instruction among groups of students with different interests.
- Based on learning profile: Students with visual and kinesthetic learning preferences showed slightly higher increases (average 17.25 and 17.02 points) compared to students with auditory preferences (15.64 points), although this difference was not statistically significant.

Qualitative Findings

Qualitative data analysis from observations and interviews supported the quantitative findings about the effectiveness of differentiated instruction. Teachers reported increased student engagement in learning, particularly in class discussions and problem-solving activities. A teacher stated: "Students who were usually passive have become more courageous in asking questions and expressing opinions. They are also more enthusiastic about completing tasks that match their interests and learning styles."

Students also gave positive responses to differentiated instruction. One student stated: "I enjoy learning this way because I can choose activities that I like. I also find it easier to understand lessons because the teacher explains in different ways." Another student added: "I feel more confident because the tasks given are neither too difficult nor too easy, so I can do them well."

Aspects of Critical Thinking That Experienced Improvement

Analysis of the aspects of critical thinking showed that differentiated instruction impacted the improvement of all aspects of critical thinking, but with varying degrees of improvement. The three aspects that experienced the highest improvement were:

- Analysis (average improvement 22.35%): Students showed significant improvement in the ability to identify relationships between concepts, elaborate arguments, and distinguish facts from opinions. Content differentiation that provided texts with varying complexity and analytical questions tailored to student readiness contributed to the improvement of this aspect.
- Evaluation (average improvement 19.72%): Students showed progress in assessing the credibility of information sources and evaluating the strength of arguments. Process differentiation involving critical discussion and evaluation of information sources from an Islamic perspective contributed to the improvement of this aspect.
- Inference (average improvement 18.48%): Students became more capable of drawing conclusions based on evidence and considering alternative solutions to a problem.

Product differentiation that gave students freedom to demonstrate understanding through various ways supported the development of inference abilities.

Aspects that experienced moderate improvement were explanation (15.63%) and interpretation (14.92%), while the aspect that experienced the lowest improvement was self-regulation (12.54%). These findings indicate that the development of metacognitive abilities in elementary school students requires special attention and intervention.

Supporting and Inhibiting Factors in the Implementation of Differentiated Instruction

Supporting Factors

Qualitative data analysis identified several factors that supported the successful implementation of differentiated instruction:

- Comprehensive Lesson Planning: Thorough planning that considered variations in student characteristics and prepared alternative learning activities was key to successful implementation.
- School Leadership Support: Principal support in the form of policies, resource provision, and professional development of teachers facilitated the implementation of differentiated instruction.
- Teacher Competence: Teachers with a good understanding of the principles and strategies of differentiated instruction, and able to manage classes effectively, succeeded in implementing this approach more optimally.
- Availability of Learning Resources: The availability of various learning resources (books, digital media, manipulatives) with varying levels of complexity supported the differentiation of learning content and processes.
- Integration of Islamic Values: An approach that integrated Islamic values in differentiated instruction increased the relevance and meaningfulness of learning for Islamic Elementary School students.
- Active Student Participation: Student involvement in determining personal learning goals and evaluating their own learning progress supported the effectiveness of differentiated instruction.

Inhibiting Factors

Several factors that became obstacles in the implementation of differentiated instruction were:

- Time Limitations: Teachers reported difficulties in managing time to plan and implement differentiated instruction optimally, especially in preparing varied materials for different groups of students.
- Large Class Size: Classes with a large number of students (more than 30) made it difficult for teachers to provide individual attention and monitor the progress of each student.
- Limited Understanding: Some teachers still had a limited understanding of the concepts and implementation strategies of differentiated instruction, especially in integrating it with Islamic values.
- Parent Expectations: Some parents had expectations oriented towards end results (exam scores) rather than the learning process, thus less supportive of approaches that emphasized differentiation and critical thinking development.
- Assessment Limitations: Available assessment instruments were not yet fully able to measure various aspects of student readiness, interests, and learning profiles comprehensively, especially in the context of Islamic education.

5. Conclusions and Recommendations

Conclusions

Based on the research results and discussion, several conclusions can be drawn. The implementation of differentiated instruction in Islamic Elementary Schools in Makassar was carried out effectively, with an overall implementation rate of 87.5%. Among the various forms of differentiation, content differentiation was the most consistently applied. The integration of Islamic values into differentiated instruction was evident through content, methodological, value, and contextual approaches. The use of differentiated instruction significantly improved the critical thinking abilities of students, as indicated by an effect size

of 0.82, which falls into the high category. Students in the experimental group showed a greater increase in critical thinking scores compared to those in the control group who received conventional instruction. The three critical thinking components that showed the most improvement were analysis (22.35%), evaluation (19.72%), and inference (18.48%), whereas the aspect with the least improvement was self-regulation (12.54%), suggesting the need for more focused development of students' metacognitive skills. Supporting factors in the successful implementation included comprehensive lesson planning, school leadership support, teacher competence, the availability of learning resources, the integration of Islamic values, and active student participation. Conversely, time constraints, large class sizes, limited teacher understanding, parental expectations, and inadequate assessment instruments served as barriers to optimal implementation.

Recommendations

In light of the findings, the study puts forward several recommendations. For teachers, it is important to develop a collection of learning resources with varying levels of complexity and modalities to support content differentiation. Teachers are also encouraged to apply effective classroom management strategies to enable flexible grouping and varied learning activities, enhance students' self-regulation through structured reflection and self-assessment, and integrate Islamic values more explicitly in nurturing students' critical thinking abilities. For schools, it is recommended to formulate policies that endorse differentiated instruction as a central learning strategy, conduct ongoing professional development for teachers, provide adequate resources and infrastructure, and engage parents in understanding the significance of responsive and inclusive learning approaches. For curriculum developers, the focus should be on creating contextual implementation guidelines for differentiated instruction tailored to Islamic Elementary Schools in Indonesia, designing comprehensive assessment tools for evaluating students' readiness, interests, and learning profiles, and explicitly embedding critical thinking skills into the curriculum. Finally, further research is needed to examine the long-term effects of differentiated instruction on students' critical thinking abilities, identify effective strategies to enhance self-regulation in learners, develop measurable models for integrating Islamic values into differentiated instruction, and create critical thinking assessments that align with the context and values of Islamic education in Indonesia.

References

[1.] Abdullah, M. A. (2018). Islamic studies in higher education in Indonesia: Challenges, impact and prospects for social harmony. *Al-Jami'ah: Journal of Islamic Studies, 55*(2), 391–426. https://doi.org/10.14421/ajis.2018.552.391-426

[2.] Al-Attas, S. M. N. (2017). *The concept of education in Islam: A framework for an Islamic philosophy of education*. International Institute of Islamic Thought and Civilization (ISTAC).

[3.] Alsharif, L., & Eissa, M. (2021). The effect of differentiated instruction on students' critical thinking skills. *International Journal of Instruction, 14*(2), 85–104. https://doi.org/10.29333/iji.2021.1426a

[4.] Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. Longman.

[5.] Anggraena, Y., & Tim Penulis. (2022). *Kajian akademik kurikulum untuk pemulihan pembelajaran*. Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.

[6.] Barrows, H. S. (1986). A taxonomy of problem-based learning methods. *Medical Education, 20*(6), 481–486. https://doi.org/10.1111/j.1365-2923.1986.tb01386.x

[7.] Barrows, H. S., & Tamblyn, R. M. (1980). *Problem-based learning: An approach to medical education*. Springer.

[8.] Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). Sage Publications.

[9.] Ennis, R. H. (2011). *The nature of critical thinking: An outline of critical thinking dispositions and abilities*. https://education.illinois.edu/docs/default-source/faculty-documents/robert-ennis/thenatureofcriticalthinking_51711_000.pdf

[10.] Facione, P. A. (2011). *Critical thinking: What it is and why it counts*. Insight Assessment. https://www.insightassessment.com/wp-content/uploads/ia/pdf/whatwhy.pdf

[11.] Griffin, P., McGaw, B., & Care, E. (Eds.). (2012). *Assessment and teaching of 21st century skills*. Springer. https://doi.org/10.1007/978-

94-007-2324-5

[12.] Lubis, M. A., & Wekke, I. S. (2016). Integrated Islamic education in Brunei Darussalam: The hope and the reality. *Tawarikh: International Journal for Historical Studies, 5*(2), 197–212.

[13.] Santrock, J. W. (2011). *Educational psychology* (5th ed.). McGraw-Hill.

[14.] Tieso, C. L. (2015). 25 years later: A retrospective reflection on differentiation, diverse learners, and the role of intelligence in curricular assessment, development, and planning. In D. A. Gentry & S. Hodges (Eds.), *ViPS theory into practice* (pp. 67–80). NAGC Press.

[15.] Tomlinson, C. A. (2014). *The differentiated classroom: Responding to the needs of all learners* (2nd ed.). ASCD.

[16.] Tomlinson, C. A., & Imbeau, M. B. (2010). *Leading and managing a differentiated classroom*. ASCD.

[17.] Valiandes, S. (2015). Evaluating the impact of differentiated instruction on literacy and reading in mixed ability classrooms: Quality and equity dimensions of education effectiveness. *Studies in Educational Evaluation, 45*, 17–26. https://doi.org/10.1016/j.stueduc.2015.02.005

[18.] Voogt, J., & Roblin, N. P. (2012). A comparative analysis of international frameworks for 21st century competences: Implications for national curriculum policies. *Journal of Curriculum Studies, 44*(3), 299–321. https://doi.org/10.1080/00220272.2012.668938

[19.] Wagner, T. (2010). *The global achievement gap: Why even our best schools don't teach the new survival skills our children need—and what we can do about it*. Basic Books.

[20.] Wang, Y., & Ma, L. (2020). The influence of differentiated instruction on critical thinking in social studies education. *Journal of Social Studies Research, 44*(4), 345–355. https://doi.org/10.1016/j.jssr.2020.04.002

[21.] Wiggins, G., & McTighe, J. (2005). *Understanding by design*. ASCD.

[22.] Zohar, A., & Dori, Y. J. (2010). Higher order thinking skills and low achieving students: Are they mutually exclusive? *Journal of Educational Research, 96*(4), 243–250. https://doi.org/10.1080/00220670009598729