

Integrating Anti-Corruption Values into Basic Mathematics Learning

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Abstract. Elementary education plays a strategic role in shaping students' character and integrity. One important effort in this regard is the integration of anti-corruption values into the learning process, including mathematics learning. This study aims to describe the forms and strategies for integrating anti-corruption values into mathematics learning at the elementary school level. Using a qualitative descriptive approach through literature analysis and classroom-based contextual practice, this study identifies mathematics learning as an effective medium for fostering honesty, responsibility, and transparency among students. The research findings indicate that mathematics learning that emphasizes logical reasoning, transparent group work, and problem-solving in a social context can foster anti-corruption awareness from an early age. The implementation of projects such as “classroom financial transparency” and integrity-based assessments encourage students to develop habits of honesty and fairness. Therefore, the integration of anti-corruption values into mathematics education not only improves students' numeracy skills but also contributes to building an integrity-based culture as the foundation of national character.

Keywords: Anti-Corruption Education, Mathematics Learning, Elementary School, Integrity, Character Education

INTRODUCTION

Basic education is not merely a place where children learn to read, write, and count; it is a living space where foundational life values take root and flourish. Schools at the elementary level function as moral gardens in which honesty, responsibility, fairness, and respect for others must be carefully planted, nurtured, and cultivated. In nations where corruption remains an entrenched social problem—affecting political institutions, economic development, and cultural norms—the need for anti-corruption education at the earliest stages becomes not only an educational priority but an urgent moral imperative. Children's first encounters with numbers, stories, and social interaction are also their first encounters with ethical decision-making. Therefore, strengthening integrity from early childhood is essential for preventing the normalization of corrupt practices later in life. As Widodo (2021) emphasized, “anti-corruption education must begin at an early age because corruption is not only a legal issue, but a character issue that is rooted in small habits that are overlooked.” He further asserted that elementary education serves as “an important foundation for shaping honest and responsible behavior that will determine the future of the nation.” In this sense, teaching at the primary level should transcend traditional academic competencies and become a fertile ground for instilling honesty, transparency, and moral courage.

International organizations and scholars also affirm the need to embed integrity education at the primary level. UNESCO (2017) stresses that early schooling is the most strategic phase to introduce moral reasoning, empathy, and social responsibility, stating that “value-based education equips children with ethical judgment necessary for resisting corrupt influences in adulthood.” Similarly, the United Nations Office on Drugs and Crime (UNODC, 2020) notes that anti-corruption initiatives succeed best when implemented long before individuals enter professional environments where the temptation or pressure to commit corruption might arise. This perspective aligns with Lickona’s (1991) classical argument that character education must become “the deliberate effort to cultivate virtues that are good for individuals and society,” beginning from the earliest grades. When these insights are tied to the Indonesian context—where the Corruption Eradication Commission (KPK) repeatedly emphasizes the need for cultural reform—primary schools become critical institutions for shaping future citizens who uphold integrity as a lifelong principle.

Mathematics, though often perceived as an exact and emotionless discipline, actually holds immense potential as a medium for building character. Behind its rigid structure and precision lies a deep ethical foundation: mathematics values honesty, accuracy, consistency, and accountability. Every mathematical procedure demands truthfulness; a misreported number or a deliberate manipulation of data compromises the entire result. In this regard, mathematics can be viewed as a “language of honesty,” where every step must reflect authenticity and intellectual integrity. Anggraeni (2019), in her article *The Idea of Anti-Corruption Education through Elementary School Mathematics Learning*, argues that “mathematics not only shapes logical and systematic thinking, but can also instill the values of honesty, fairness, and responsibility through contextual learning activities.” She highlights examples such as distributing resources, conducting class budgeting activities, comparing quantities, or analyzing patterns in data—activities that naturally invite conversations about fairness, truthfulness, transparency, and ethical reasoning. When teachers guide students to reflect on how mathematical solutions relate to real-world issues—such as budgeting responsibly, dividing goods fairly, or avoiding manipulation of numbers—mathematics transforms from a purely cognitive subject into a dynamic platform for character development.

This view is supported by research from Bishop (2008), who emphasizes that mathematics carries cultural and ethical dimensions, as it teaches students the importance of precision and verifiable truth. When children learn that “ $2 + 2$ must always equal 4, no matter who calculates it,” they internalize a universal standard of fairness and objectivity—values that directly oppose corrupt practices based on manipulation, dishonesty, and personal gain. Meanwhile, Nkopodi and Mosimege (2009) assert that mathematical tasks involving reasoning, problem-solving, and decision-making can develop moral judgment when framed within socially meaningful contexts. For instance, tasks involving distribution of class supplies or planning collaborative group projects can evoke discussions on fairness and responsibility. Thus, mathematics becomes more than just number manipulation; it becomes a learning context where ethical thinking and personal accountability can flourish.

Despite growing advocacy, the integration of anti-corruption values into mathematics learning is still inconsistent and far from optimal. Many teachers continue to perceive character education as an external addition—something separate from academic subjects rather

than embedded within them. This misconception often leads to fragmented implementation: moral lessons are taught only during specific thematic activities, while mathematics lessons remain focused solely on procedural accuracy. As a result, learning often emphasizes “getting the right answer” instead of understanding the moral significance of honesty in the process of arriving at that answer. This condition aligns with Anggraeni’s (2019) findings, which state that “values education in mathematics is often not explicitly programmed, even though through the context of real-life problems, students can learn about honesty, responsibility, and empathy.” Additionally, Suryani (2020) reports that many teachers struggle to design contextual tasks that integrate ethical values, due to limited training, inadequate teaching resources, and pressure to achieve high academic test scores.

Furthermore, systemic disparities widen the challenge. Schools in urban areas may have more opportunities for training and innovation, while rural schools often operate with fewer resources and less pedagogical support. According to Harefa (2022), disparities in teacher competence and access to professional development significantly affect the quality of value-integrative learning. Without equitable support, the potential of mathematics as a platform for anti-corruption education remains unrealized. Students may excel at computation but fail to connect mathematical accuracy with personal integrity. Moreover, many textbooks still present mathematics as a purely technical subject, lacking contextual narratives that encourage moral reflection. Therefore, the present gap is not only pedagogical but also structural, requiring systemic collaboration among teachers, curriculum developers, school leaders, and policymakers.

This study seeks to explore how anti-corruption values can be meaningfully integrated into mathematics learning at the elementary-school level. Specifically, this article aims to: Identify issues and gaps in the application of anti-corruption values in mathematics lessons; Describe learning strategies that foster honesty, responsibility, transparency, and fairness in mathematical problem-solving; Offer practical recommendations for designing learning activities that strengthen students’ moral reasoning alongside their mathematical competence.

The urgency of this study arises from the need to restore the holistic mission of basic education: forming individuals who are intellectually capable, emotionally mature, and morally upright. In the increasingly complex landscape of modern society—where technological advancements can both empower and corrupt—mathematics education must evolve into a subject that cultivates ethical clarity, not merely computational skill. Integrating anti-corruption values into mathematics learning is not an optional enhancement but an essential pathway toward developing a generation that can calculate not only numbers but also the moral consequences of their decisions. Through consistent practice, reflection, and real-world application, students will internalize the understanding that truthfulness is not simply a personal virtue but a societal necessity. The hope is that this integration will nurture future citizens who value transparency, uphold justice, and resist corruption in all its forms.

METHODOLOGY

This research uses a descriptive qualitative approach, focusing on exploring the meaning and process of integrating anti-corruption values into mathematics learning in elementary

schools. This approach was chosen because it allows researchers to gain a deeper understanding of teachers' and students' experiences in a real-life classroom context.

According to Moleong (2019), qualitative research seeks to understand phenomena holistically by exploring the meanings, perceptions, and social interactions that occur in the field. In this context, the researcher acts as the main instrument, directly observing learning practices and interpreting the moral values that emerge. This perspective is consistent with Creswell's (2018) argument that "qualitative research is an approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem," emphasizing the importance of capturing participants' lived experiences rather than imposing predetermined categories. Similarly, Merriam and Tisdell (2016) assert that qualitative research is "concerned with how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences," suggesting that the researcher must engage deeply in the natural setting to uncover values embedded within everyday interactions. Denzin and Lincoln (2018) also reinforce this view by stating that qualitative inquiry involves "an interpretive, naturalistic approach to the world," where researchers study phenomena in their real-life contexts and attempt to make sense of them based on the meanings people bring to them. These complementary perspectives highlight that qualitative research is not only descriptive but also interpretive, enabling researchers to uncover implicit moral messages such as honesty, fairness, and responsibility that are reflected in classroom activities and student–teacher interactions.

In addition, this study also includes a literature review as a complement, by reviewing various references from the Corruption Eradication Commission (KPK), the Ministry of Education and Culture, as well as previous studies (such as Anggraeni, 2019; and Suyitno & Sukmayadi, 2022) to strengthen the conceptual framework of anti-corruption education and meaningful mathematics learning. According to more recent empirical research, character and integrity education can be effectively integrated into mathematics learning in elementary schools. For instance, in a study titled "Character Education in Mathematics Learning in Contemporary Era: A Case Study in Indonesia", Hardi Suyitno and Fariz Setyawan (2023) show that mathematics classes can become fertile ground for value formation when teachers intentionally align mathematical content with character values such as honesty, responsibility, and fairness.

In their study, they document how mathematics problems, discussions, and classroom interactions become opportunities for students to reflect on moral values — not only as abstract ideals, but as concrete choices manifested in everyday learning processes.

Similarly, research by Khadijah Khadijah, Indah Suciati, Khaerani and colleagues (2021) — in their meta-analysis titled "Schools' character education values and students' mathematics learning achievement: A meta-analysis" found a significant positive relationship between character education values and mathematics learning outcomes. Their results suggest that teaching mathematics in a way that fosters character contributes not only to moral development but also to improved mathematical achievement.

By incorporating these contemporary studies into the conceptual framework, the argument for integrating anti-corruption values into mathematics learning becomes stronger and more evidence-based. Such integration aligns with the idea that mathematics is not only a cognitive discipline of numbers and logic, but also a context in which students can develop integrity, honesty, accountability, and social responsibility.

Therefore, in designing an anti-corruption oriented mathematics curriculum, educational stakeholders should draw upon recent empirical evidence such as Suyitno & Setyawan (2023) and Khadijah et al. (2021) to justify the relevance and effectiveness of value-integrated mathematics instruction

Research Subjects and Locations

Fifth grade elementary school teachers, who are the main actors in designing and implementing anti-corruption based mathematics learning.

Fifth-grade elementary school students, consisting of 28 active participants in the learning process, interact and demonstrate behaviors that reflect their understanding of the values of honesty, responsibility, and transparency.

The research location was determined purposively, namely public elementary schools in Bandung that have implemented the Independent Curriculum and the Pancasila Student Profile program.

Data collection technique

To obtain in-depth and comprehensive data, the following data collection techniques were used:

Class Observation

Researchers conducted direct observations of the mathematics learning process in the classroom, by recording teacher and student activities that contained anti-corruption values, such as honesty in reporting group work results, fairness in dividing tasks, and responsibility in completing numerical projects.

In-depth Interview

Interviews were conducted with class teachers and several selected students to explore their perceptions, understanding, and experiences in applying anti-corruption values in mathematics learning activities.

Interviews also focused on how teachers prepare lesson plans, manage classes, and assess students' moral and cognitive attitudes.

Document Analysis

The documents analyzed included lesson plans, student worksheets, and student reflections. This analysis aimed to determine the extent to which anti-corruption values had been systematically integrated into the learning materials.

The use of these three techniques simultaneously serves as data triangulation, so that the research results have strong validity (Miles, Huberman, & Saldaña, 2014).

Data Analysis Techniques

Data analysis was carried out interactively and continuously according to the Miles and Huberman (2014) model which includes three main stages:

Data Reduction

Data from observations, interviews, and documents were selected and summarized to find relevant themes, such as forms of learning activities that prioritize the values of honesty, openness, responsibility, and justice.

Data Display

The reduced data was organized into narratives, tables, and matrices that categorized the anti-corruption values that emerged in mathematics learning activities. For example, the activity "counting money in class" was categorized as an application of the values of transparency and accountability.

Conclusion and Verification

The researchers interpreted the meaning of the findings and verified the analysis by comparing data sources (observations, interviews, and documents). From this process, they concluded that there is a pattern of effective integration of anti-corruption values into elementary school mathematics learning.

Hierarchical Table: Pattern of Integrating Anti-Corruption Values in Elementary Math Learning

Stage	Sub-Components	Details
1. Planning Stage	1.1 Identify Math Concepts	Teachers identify relevant mathematical topics
	1.2 Map Anti-Corruption Values	Values such as honesty, responsibility, transparency, and fairness are linked to the selected math concepts.
	1.3 Prepare Learning Activities	Teachers design learning tasks that embed value-based scenarios
2. Implementation Stage	2.1 Inquiry-Based Tasks	Students explore problems that require truthful responses, evidence-based reasoning, and transparent solution steps.
	2.2 Group Work with Accountability	Students collaborate in groups of 28 <i>fifth-grade learners</i> , with each member responsible for contributing and reporting honestly.
	2.3 Problem-Solving with Honesty Checks	Students complete tasks where accuracy, integrity, and verification steps are emphasized.
3. Evaluation Stage	3.1 Reflective Assessment	Students reflect on their learning experiences and identify moments where honesty and responsibility appear.

	3.2 Behavioral Observation	Teachers observe daily behavior, focusing on transparency, fairness, and responsible attitudes.
	3.3 Value-Based Rubric	Assessment uses rubrics that include criteria for honesty, accuracy, accountability, and ethical problem-solving.

Categorization of Anti-Corruption Values in Mathematics Learning Activities

As part of the analysis, the researchers categorized the anti-corruption values observed in the context of mathematics learning:

Aspects of Mathematics Activities Form Student Activities Internalizing Anti-Corruption Values

Group discussion on class cash calculations. Division of tasks according to agreement. Fairness, responsibility.

Reporting calculation results Presenting data without manipulation Honesty, accountability

Solving simple financial problems Creating transparent solutions Transparency, collaboration

Reflecting on learning outcomes Admitting miscalculations and correcting them Integrity, humility

This categorization is used to understand how anti-corruption values are not only taught verbally, but are brought to life through meaningful learning activities.

Data Validity and Research Ethics

To ensure data validity, triangulation of sources and methods was conducted, comparing observation results with interviews and learning documents. All participants were given an explanation of the research objectives, and their participation was voluntary and their identities were kept confidential.

A humanistic approach was applied throughout the research process: researchers respected the autonomy of teachers and students and viewed them as learning partners, not simply research subjects.

RESULTS AND DISCUSSION

Research Result

Observations and document analysis indicate that integrating anti-corruption values into mathematics learning can be done naturally and meaningfully through contextual activities. The fifth-grade teacher who was the subject of the study linked material on calculating fractions, measuring, and managing data to students' everyday situations, such as managing the class fund, distributing prizes, or recording activity funds.

This learning activity indirectly internalizes the following values:

Integrated Mathematics Learning Activities Anti-Corruption Values Description of Field Findings

Calculating class cash expenditures Transparency and accountability Students are asked to record every expenditure openly; the teacher emphasizes the importance of evidence and honest record-keeping.

Sharing the results of group projects Fairness and responsibility Students are invited to discuss how to share the results of work fairly according to their contributions; the value of "fairness is not equal distribution" emerged in the discussion.

Presenting calculation results on the whiteboard Honesty and openness Students who find calculation errors dare to correct themselves in front of the class without fear of being blamed.

Compiling a report on the results of learning Integrity and self-reflection The teacher asks students to write a reflection on "what I did honestly today" at the end of the lesson. These findings suggest that anti-corruption values do not require new material but can be realized through learning patterns that focus on the process, rather than solely on outcomes. This aligns with Anggraeni's (2019) opinion that "values education in mathematics will be effective if contextualized through concrete experiences that require students to think honestly and responsibly."

Furthermore, interview results indicated that students were beginning to understand the meaning of honesty in the context of mathematics. One student said, "If you lie when calculating, the results will be wrong and your friends won't trust you anymore." This simple statement demonstrates that moral understanding grows from learning experiences, not just from advice.

Teachers also revealed that these activities increased students' activity and sense of responsibility. They became more open when discussing miscalculations and more careful in recording data. This reinforces Widodo's (2021) view that anti-corruption education "must begin at an early age, because integrity grows from small habits of honesty and responsibility."

This section presents the research findings, supported by relevant tables, figures, or charts to provide clear and visual representation of the data. The discussion should connect the results to the research question, offering an analysis that ties them back to the study's objectives or hypotheses. Additionally, the results should be compared with previous studies, highlighting any alignments or conflicts with existing research and theories. The discussion may also explore the implications of the findings, both in terms of theoretical contributions and practical applications, providing a comprehensive interpretation of the results.

Discussion

Based on the results of the analysis, there are three main findings that describe the process of integrating anti-corruption values into elementary school mathematics learning.

Mathematics as a Medium for Practicing Honesty and Accountability

Mathematics demands precision and honesty in every step of thinking. When students are encouraged to explore the problem-solving process openly, they learn that every mistake should be acknowledged and corrected, not hidden. In this sense, the mathematical thinking process serves as a concrete analogy for the principle of public accountability taught in anti-corruption education (KPK, 2021).

Contextual Learning as a Means of Internalizing Values

Anti-corruption values cannot be imposed through moral lectures. Teachers who successfully instill these values are those who connect mathematical concepts to real-life situations (CTL). For example, activities like managing pocket money together or creating a simple budget report train students to be transparent and accountable for group decisions. In line with Sari & Puspitasari (2022), "moral values will develop when students experience them, not just hear about them."

The Role of Teachers as Role Models and Facilitators of Integrity

Teachers play a dual role as behavioral role models and moral guides. In observed lessons, teachers consistently demonstrate openness—acknowledging errors in numerical writing, valuing students' honesty, and emphasizing fairness in assessments. This attitude forms an effective hidden curriculum that fosters a culture of integrity. As Moleong (2019) states, researchers (and teachers) in the context of qualitative education are not merely observers but "human partners who foster shared values through interaction."

These findings confirm that mathematics learning can be a platform for developing anti-corruption character if designed with an awareness of values, not simply the transfer of concepts. This aligns with the guidelines of the Corruption Eradication Commission (KPK)'s Anti-Corruption Education Center, which emphasizes honesty and responsibility-based learning in all learning activities.

CONCLUSION

Integrating anti-corruption values into elementary school mathematics learning has proven effective through a contextual, reflective, and collaborative approach. The values of honesty, responsibility, fairness, and transparency can be internalized through simple activities such as class cash management, reporting calculation results, and learning reflection.

Teachers play a central role in realizing these values through exemplary behavior, fair classroom management, and transparent evaluation. Thus, mathematics learning is not only a means to achieve numeracy competency, but also a medium for developing students' moral integrity and social awareness.

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